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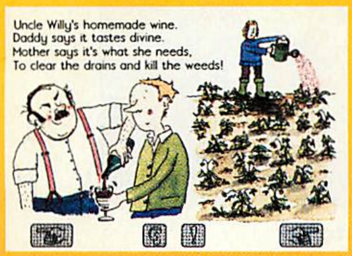
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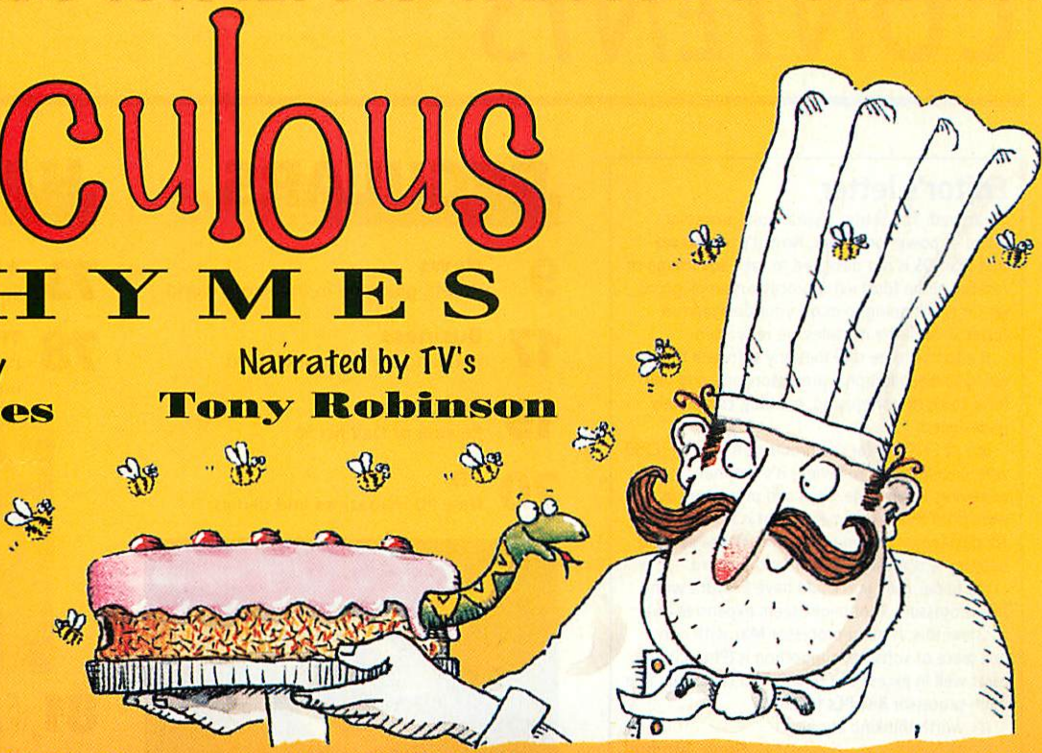
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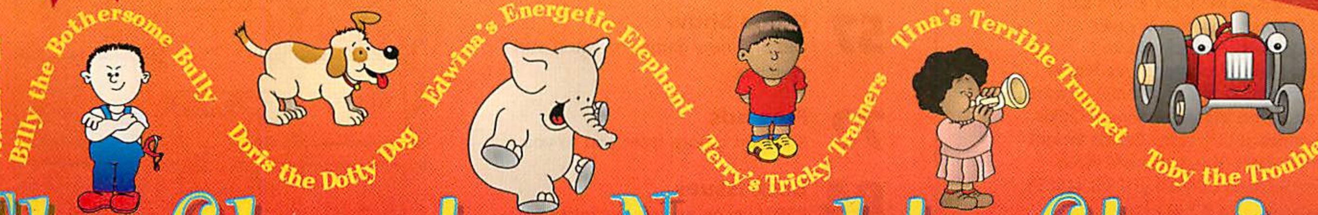
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Editor's letter

It's arrived: The Simtec *Hydra* multi-processor board — power on a stick. Now it's true to say that RISC OS is not designed to take advantage of one (let alone four) extra processors so plugging one in is not going to make your desktop run faster — until the modules are re-written.

It also has to be said that any software that is going to use additional processors properly will have to be re-written and, possibly, completely re-designed.

But at £150-ish for the production version (£250 with development software) it's not that expensive to upgrade, then add processors as you can afford them. This means that it *is* worthwhile for developers to design with the Hydra in mind because Acorn owners *will* buy the board.

For under £600 you could have a Hydra with five processors. That might seem expensive but consider this: A multi-processor Mac with only one piece of software supporting it (PhotoShop) costs well in excess of £10,000. You could buy five multi-processor Risc PCs for that.

It's worth thinking about.

Steve Turnbull

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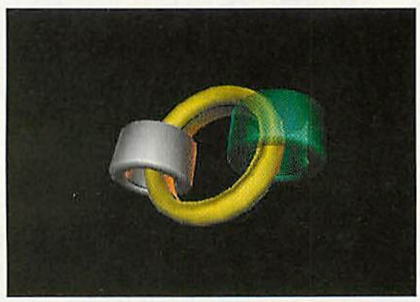
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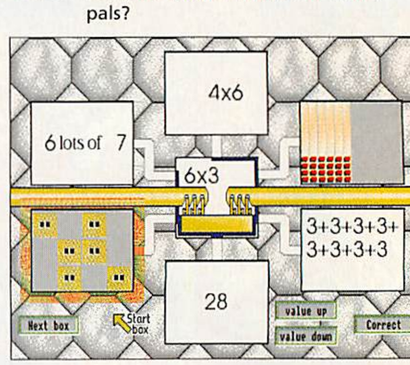


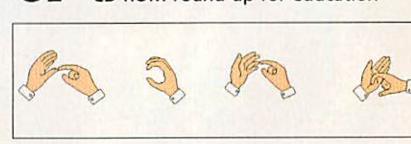


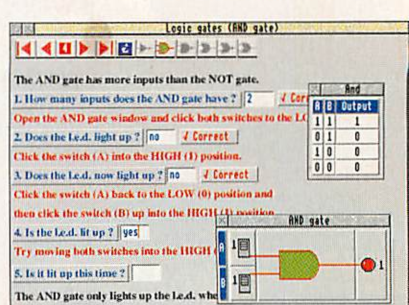
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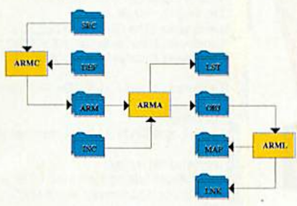


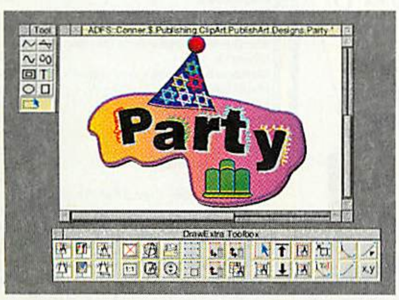


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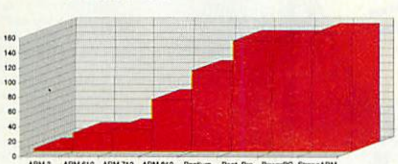
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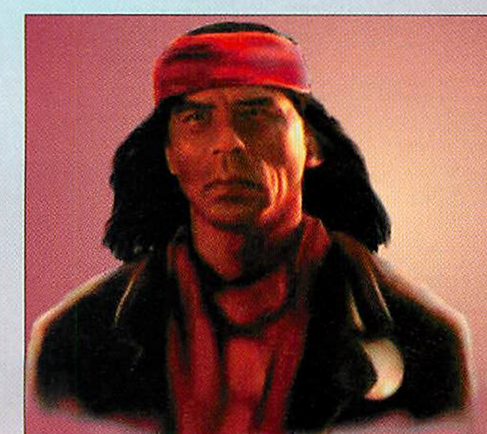
FEATURES



SPECIAL OFFERS
- New VTi modem offer see Page 62
- Five-game pack for just £39 on Page 52







Next month in Acorn User

- Dave Matthewman begins a short series on producing HTML pages for the World Wide Web
- Walter Briggs produces another fantastic picture using the next package under review.

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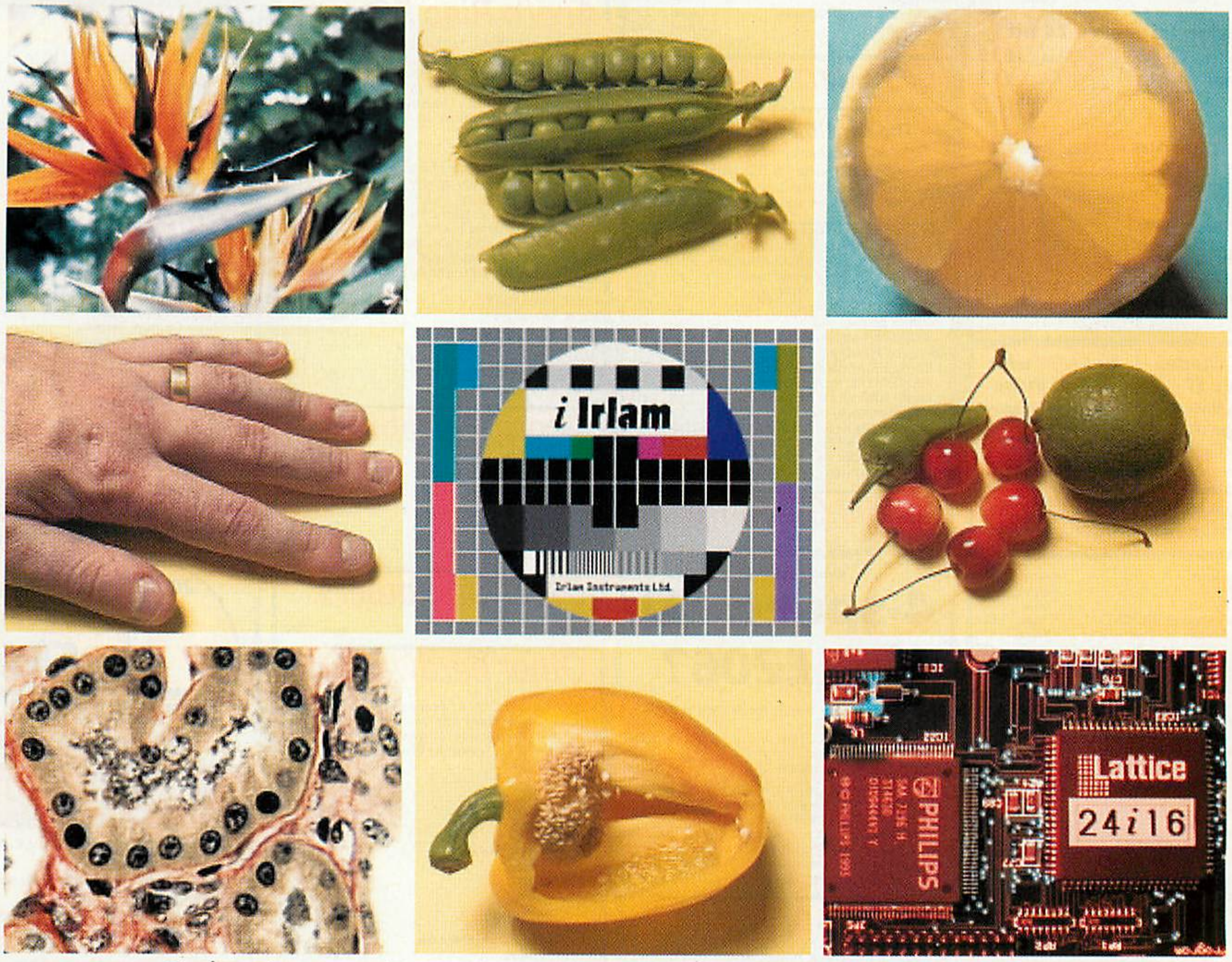
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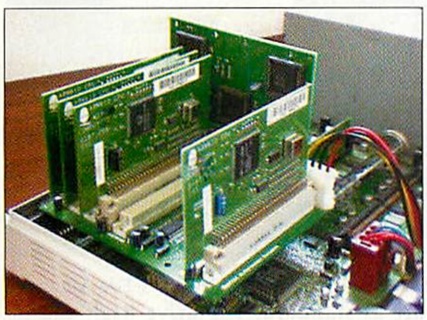
Simtec's Hydra unleashed

SIMTEC Electronics has started to ship it's exciting Hydra multi-processor upgrade card for the Risc PC. The Hydra card endows a Risc PC with remarkably affordable asymmetric parallel processing power.

The Hydra card interfaces with the Risc PC via one of the standard dual processor slots and duplicates both of the original slots and combines additional slots with the necessary arbitration logic to support a further four ARM processor cards.

Because the Hydra design includes the hardware needed to control the extra boards in the interface itself, ordinary ARM610 and 710 processor cards can be used. This makes it possible to add up to four off-the-shelf ARM processor cards to any Risc PC system.

Indeed, any processor which appears to the system to be an ARM card can be used. This opens up the possibility of adding alternative high-speed I/O cards which access memory or other expansion cards directly, according to Simtec engineer, Gareth Simpson.



With four slave processor cards fitted, a Risc PC with a Hydra has, in theory, five times the processing power of a standard Risc PC. What software can take advantage of Hydra? Versions of Risc BSD (a Unix-compatible OS) is already being developed for the Hydra.

The board is also ideal for Taos — the multiprocessor OS which already runs on the standard ARM. These operating systems are ideal for Hydra as they can multithread the execution of applications programs and will automatically take advantage of any available processors.

RISC OS was never designed for a multi-processor system, but Simtec has produced a Hydra API (application programming interface) via which modified RISC OS programs can run. As the API exists independently on RISC OS, any MP aware applications will make use of the new resources while ordinary applications will run unaffected.

Because RISC OS applications require individual modification to run on a Hydra system - even via the API - the choice of Hydra-aware software will be limited to start with. However the Hydra-driven Risc BSD system could form the basis of a remarkably cheap and powerful Unix system and Eidos, the video compression and editing company featured in last month's news, is committed to using Hydras for ultra high-quality digital video compression in real time.

Eidos' co-founder, Stephen Streater told *Acorn User* that the Risc PC and Hydra could be at the heart of new *Optima* professional off-line video editing packages and Streater looks forward to running StrongARMs with Hydra. Spacetech is also working on a Hydra-compatible version of its *PhotoDesk* image processing package.

So what about pricing and availability? Pre-production iterations of the Hydra hardware are available now for £249 + VAT. These are being produced primarily for developers, but a more affordable single piece version of the card will eventually be available for end-users, priced £149 + VAT. Simtec say ARM610 cards, many of which are suitably re-cycled from Risc PC users who have upgraded to ARM710s, are available from around £20 each, so the prospect of a powerful multi-processor upgrade for your Risc PC for under £300 is on the cards.

It's interesting to note that the Hydra with a complement of processors fitted compares rather favourably price-wise with, for example, the cost of some single-processor options for the Risc PC and other platforms.

Simtec Electronics, e-mail: gareth@simtec.demon.co.uk, tel: (01772) 812863, fax: (01772) 816426.

Online Media wins major award

ACORN Online Media's digital interactive TV set-top box, the STB2, has won the accolade of *Most innovative cable or satellite telecommunications product* at the recent 1996 Cable & Satellite Show awards.

Simon Wyatt, Acorn Online Media's General Manager, commented: 'The STB2's open architecture means that it is the best choice for interactive multimedia, be it broadband or narrowband. Acorn Online Media is dedicated to being the world's leading authority on iTV and I am delighted we have been awarded such an important industry award. It is a very exciting time for Acorn technology and our partners who are licensing it.'

Behind the Acorn Online Media STB2 in the 'Most innovative cable or satellite telecommunications product' category was Nokia Consumer Electronics' DVB 9500s Multimedia Terminal with Digital Receiver, followed in third place by Nortel's SDH transmission product - Nortel Fibre World TN-16X.



See also news feature ***STB Internet access***

ARM Club's biggest event yet

THE ARM Club will be holding it's biggest ever event on the weekend after the Wakefield Acorn Spring show at the Gonville Hotel, Gonville Place, Cambridge, CB1 1LY on Saturday 25th May opening at 10.00am.

Confirmed exhibitors so far include: ART, Aleph One, ANT, APDL, Atomwide, Beebug, I.S.V., RComp, Eesox, ERIC International, Creative Curriculum Software, Digital Databank, Fabis Computing, Iota Software, Alsystems, Topologika, V.T.I. & Eclipse, Armed Forces Software and Computer Concepts.

ARM Club members can get into the show for £1 - slightly cheaper than non-members and it's free for under-16s. The ARM Club, FREEPOST ND6573, London, N12 0BR, fax: 0181-446 3020, email: clubinfo@armclub.org.uk, WWW http://www.brunel.ac.uk:8080/~cs92adf/ArmClub.html

PenDown surfs the Web

Longman Logotron has released an updated version of its successful *PenDown* word processing package. The new version is called *PenDown DTP* and, as its name suggests, desktop publishing features have been added.

Another enhancement is HTML (hypertext markup language) compatibility so you can use *PenDown DTP* to create Internet World Wide Pages. Another novel feature of *PenDown DTP* is that it has three levels of configuration suitable for 6-9 year olds, 8-12 year olds and a full function mode for everybody else.

PenDown DTP is priced £59 + VAT for a single-user pack and a variety of site licence options. Longman Logotron, tel: (01223) 425558, fax: (01223) 425349, WWW,http://www.logo.com/pen dtp/index.html

8X CD ROM drive from Eesox

An 8X CD ROM drive has been announced by Eesox. Four times faster than an ordinary double-speed CD-ROM drive, missed frames when running Replay movies should be thing of the past with the new drives. They use an ATAPI drive interface, which Acorn has now standardised on in its latest models.

Called the ATAPI Gold, the 8X drive is priced £199 + VAT and Eesox's optional *CDFast* cache program is priced £15 when bought with the drive.

Eesox has also announced a CD-ROM recorder for making your own CD ROM discs – useful for backing up data or publishing your own CD-ROM titles. CD-ROM Recorder, which uses Eesox's *CDScribe* software, is priced £799 + VAT (internal version) or £60 extra for a cased external version.

You will also need a SCSI interface. Blank CDs cost £6.99 or £65 for ten. It takes about 35 minutes to write a full CD (working in double speed mode). The drive can also be used a quad-speed CD-ROM drive for read-only purposes. Eesox, tel/fax: (01954) 212263, e-mail: eesox@cityscape.co.uk

Pocket Book gets floppy

PURPLE Software, which specialises in the Psion Series 3 pocket computer family, which includes the Acorn Pocket Book, has launched a new games cartridge and an external floppy drive. Purple Software's best known products to date include *DataView Pro*, a database management program which was apparently endorsed by Psion as the 'best general purpose database for the Psion Series 3a'.

Purple Software also sells *Toolkit I*, a package featuring four utility modules, including a graphical file manager, a units conversion utility, a universal bit image graphics file viewer and display print utility.

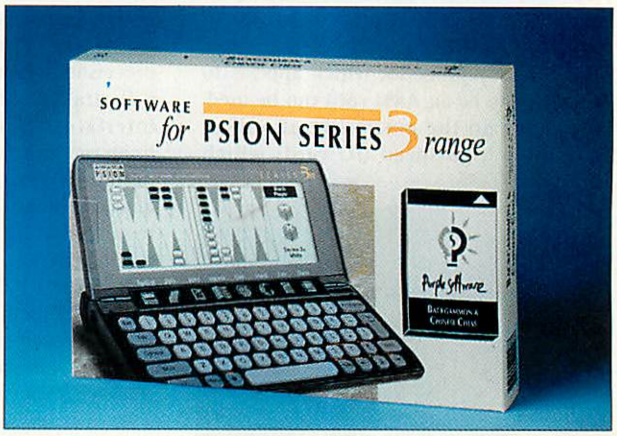
DataView Pro is priced £59.95 inc. VAT when supplied on floppy disc and costs ten pounds more for the SSD (solid state disc) cartridge version. *Toolkit I* is priced £39.95 inc. VAT on disc and £49.95 inc. VAT on SSD.

The new games from Purple Software include versions of *Backgammon* and *Chinese Chess*. Both games were developed specifically for the Psion/Pocket Book and have very good graphics. Games can be suspended and saved for later resumption and, if you wish, you can take pack pieces and replay moves. Other options include asking the computer to suggest a move for you and choosing aggressive or defensive playing styles.

You can play against the computer or another player, or even just watch the computer play itself automatically. The version of *Chinese Chess* was apparently written by a champion Chinese Chess programmer. *Backgammon* and *Chinese Chess* are available either on floppy disc or SSD, with the disc version priced £34.95 inc. VAT and the SSD version £39.95 inc. VAT.

From the end of May you will be able to buy Purple Software's new Cyclone external 3.5 inch floppy disc drive for your Series 3a/Pocket Book. The drive is also compatible with the Psion WorkAbout, the industrial version of the Series 3a.

The drive is compatible with standard 720K and 1.44Mb PC floppy discs and the obvious attractions are being able to back up your Pocket Book files quickly and conveniently without having to use the serial link with another host computer, saving money by buying disc-based versions of applications software and easing file transfer from a PC or Acorn (using PC format discs) to or from the Pocket Book. The Cyclone



also comes with Purple Software's File Manager software as standard. The drive itself can be either battery or mains powered.

The Purple Software Cyclone is priced £149 inc. VAT and like other Purple products should be available from most major Psion stockist. Purple Software Limited, tel: 0171-387 7777, fax: 0171-387 1188, e-mail: 100526.3715@compuserve.com.

STB Internet access

ACORN Online Media STB users participating in the Cambridge Interactive Television Trial can now access the World Wide Web through their domestic TV sets. While many *Acorn User* readers will be familiar with surfing the Net using a keyboard and mouse, as with all of the services available on the Trial, access and navigation is controlled by a simple VCR-style infra-red handset.

Access to the web is fully integrated with the other services like video and audio on demand and fast cached Teletext, a text service for ITV and Channel Four, providing viewers with 24 hour, up-to-the-minute national and regional information. Video and audio can be launched from web pages, and if a Teletext page contains a web link, the user can jump to that web page with a single press of a button.

Alan Clarke, Cambridge Trial Services Manager, commented: 'Interactive television is not simply about video on demand, games, or home shopping – it is about giving the user access to the widest possible set of information and entertainment services, presented in a simple and accessible manner. Having the Internet on the trial takes this a step further, for example, if you look at a web page with an associated video clip, over narrowband you get text only, but over a broadband network you can play video or CD quality audio.'

Each home or school on the Trial is connected to the central server by a 2 Mbit/sec ATM (Asynchronous Transfer Mode) link. This is about 70 times more efficient than a fast modem connection, so the problem of sluggish World Wide Web graphics experienced by modem users becomes a thing of the past.

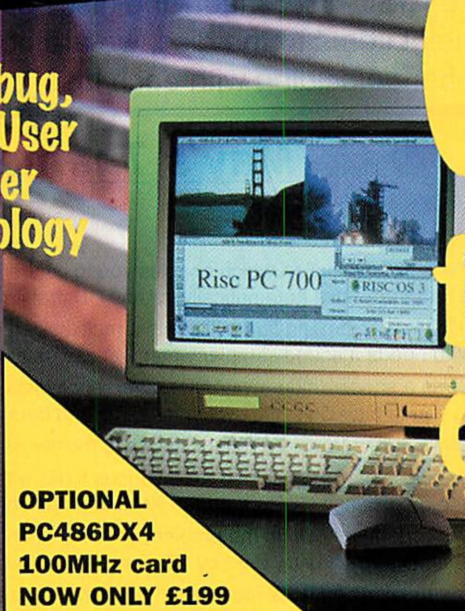
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Being a good Xemplar?

XEMPLAR (pronounced 'exemp-lar') is the new name chosen by Acorn and Apple UK for their new joint venture company which was launched back in March. More accurately, the new concern will be officially called Xemplar Education Limited.

Xemplar's job will be to market both Apple and Acorn computer products to schools throughout the UK. Although Xemplar has acquired an attractive new logo design, hardware products at least will continue to bear the branding of their source – either Acorn or Apple.

There has been some concern within the Acorn world that Xemplar would be bad for Acorn – eroding Acorn's individuality and unique ARM-based computer platform. *Acorn User* took time out talk to Xemplar's managing director, Brendan O'Sullivan – himself recruited from Apple's ranks – and he was very keen to allay any fears that the Acorn community might have.

O'Sullivan re-iterated the fact that the PowerPC RISC platform was an agreed platform of choice for Xemplar in the not too distant future (see the feature on CHRP in this issue) and that a development of the Apple Mac OS would be the default operating system, but at the bottom line Xemplar would sell what the customer wanted.

Asked if he would be under pressure from the management of Apple UK to sell Apples instead of Acorns, O'Sullivan's answer was double-edged. Yes, of course Apple would be keen to sell as many Apples through Xemplar as possible, but Xemplar is a 50/50 joint venture and there would be just as much sales pressure from the Acorn side of the equation.

There was confirmation from O'Sullivan that, if there was enough demand, there may be a plug-in solution to endow a Power PC Xemplar computer of the future with RISC OS compatibility. Xemplar had commissioned Acorn to develop such a solution, but it would have to be commercially viable to earn its place on the Xemplar price list.

Meanwhile, ARM processor improvements to the RISC PC, for example, would continue unabated, especially the prospect of StrongARM-powered Acorn designs. One avenue, however, Xemplar apparently won't be exploring is that of selling IBM PC-clones into school classrooms. PC-compatibles supplied by Xemplar will be aimed at school administration departments and for local area network server applications only.

Another interesting revelation from Xemplar is that the idea of a joint venture with Apple actually originated from discussions between Apple and Olivetti at a Europe-wide level. Olivetti, until recently, was a majority shareholder in Acorn.

Xemplar UK will be the first of several Xemplar companies to be formed in several other European countries to tackle the local education market, however it's not clear if Acorn will have a role in these sibling Xemplars. Xemplar Education Limited, tel: (sales) (01223) 724200, (customer service) (01223) 724201.

SEMERC's early talker

PAGES is the name of SEMERC's new easy-to-use word processor, with a talking facility, for youngsters. The package complements SEMERC's existing *Phases* word processor and is able to accept *Phases* documents. *Pages* allows you to drag and drop pictures and text files onto the page, start typing in new text or even doodle using a drawing tool.



Objects on the page can be moved around easily and things like text can be changed in size and colour, etc. Special effects include shadows and variable colours. There is also a picture bank facility via which a teacher can store resources, like pictures and text, which are easily accessible by the student. *Pages* is priced £49 + VAT for a single user or £98 + VAT for a site license. SEMERC, tel: 0161-627 4469, fax: 0161-627 2381



At last the Oracle NetComputer in all its glory

Acorn World Show update

WITH six months to go to Acorn World there are already nearly 30 major exhibitors committed to the exhibition, which is at Olympia Two this year between November 1-3.

EPS Events, the organisers, are mailing out information and booking forms in May to potential exhibitors which will include some selected PC and Apple Mac-based companies. Stephen Bozdan, EPS Events Director explains, 'With the Risc PC's rapidly growing potential to embrace media from other operating systems, we believe it will do no harm to invite developers from other backgrounds to step inside the Acorn World.'

Plans for the Fringe — as opposed to the *Fring* as described in last months news — seminar programme for day one of the exhibition are in progress, which may include an *Acorn Publishers' Forum* organised by Mike Williams. The Internet will be well-represented both at the exhibition itself and in Fringe sessions with contributions from Argonet and ANT.

There are sure to be plenty of product launches and Sherston Software have chosen Acorn World to launch two new products. *Rusty Dreamer* is described as 'the ultimate reading experience' and *The Talking Nursery Rhymes* which is expected to be a Sherston classic.

EPS are arranging special discounts on travel, accommodation and entertainment for those wanting to make a weekend of it. Advance ticket prices for the exhibition are held at 1995 prices: £5 adult, £4 under 16 and £16 family ticket (2 adults, 2 children). Prices on the door are £7 adult, £5 under 16 and £20 for families.

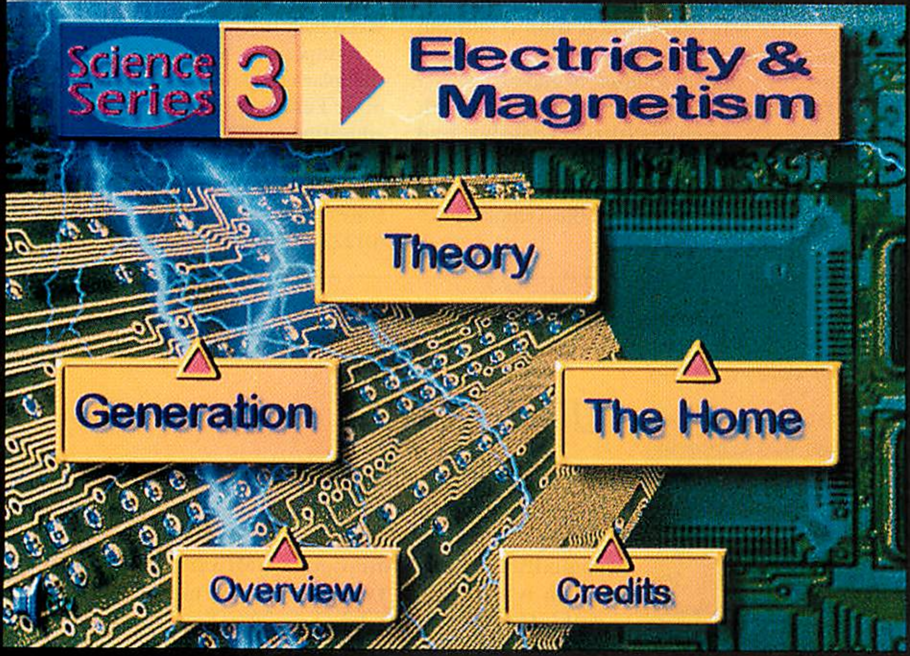
For further details look at the Acorn World website, sponsored by Argonet which can be accessed on http://www.argonet.co.uk/acorn-world/

Acorn WORLD

YITM ships magnetic CD-ROM

YORKSHIRE International Thomson Multimedia (YITM) has released Electricity and Magnetism, a new CD-ROM title aimed at Key Stage 2 primary and Key Stage 3 secondary students. The CD-ROM is presented in three sections; theory, generation and the home. This means students get a progressive insight into what electricity and magnetism are, how the two relate to each other, how electricity is produced for national use and finally how we use it in our homes. Classroom worksheet sets accompany the CD-ROM.

The primary version of Electricity and Magnetism is priced £59.99 + VAT and the secondary edition £79.99. YITM, tel: 0113-243 8283, fax: 0113-243 4884.



New Canon colour duo

CANON has added a pair of mid-range colour bubble jet printers to its line up. The sub-£200 BJC-210 is actually a mono printer which can take an optional colour cartridge. The colour option is three-colour only, so blacks – which are made from combining three primary colours – are not as pure as a true four-colour printer, like the other new Canon model – the more expensive BJC-4100 or the established range-topping BJC-610.

However, sample prints supplied by Canon show that reasonable blacks are achievable by the BJC-210 when using the colour cartridge and colour reproduction in general is very good. Using the mono cartridge, up to 3.4 pages of text can be printed per minute. The mono cartridge can print at a resolution of up to 720x360 dpi and benefits from edge-smoothing technology. The colour cartridge has a maximum resolution of 360x360 dpi and each page printed takes four minutes to form.

The BJC-4100 can print at 720x360 dpi in both colour and black and white modes and the colour cartridge option works in tandem with a mono ink cartridge for true four colour printing. The BJC-4100 is also faster than the BJC-210, offering 4.5 page per minute mono printing rates and 3.4 pages per minute mono text printing when using the colour cartridge. Full colour printing takes just over a minute per page.

Computer Concepts has added Turbo Drivers for both of these new Canon models. CC's price for the BJC-210 is £179 + £10 P&P + VAT. The BJC-4100 is priced £239 + £10 P&P + VAT. Prices include Turbo Drivers. Computer Concepts, tel: (01442) 351000, fax: (01442) 351010, e-mail: info@cconcepts.co.uk, WWW: http://www.cconcepts.co.uk. Canon: tel: 0121-680 8062, fax: 0121-693 5070.

CC hardware price cuts

Computer Concepts has reduced the prices of three of its upgrade cards. The TV Tuner card and the TV Tuner with Teletext have each been reduced by a tenner to £79 + £6 P&P + VAT and £149 + £6 P&P + VAT, respectively. CC's Movie Magic card has received a £30 cut, from £249 to £219 (+£6 P&P + VAT). Computer Concepts, tel: (01442) 351000, fax: (01442) 351010, e-mail: info@cconcepts.co.uk, WWW: http://www.cconcepts.co.uk

Pocket Book 2 e-mail

Psion, which has just reported its best financial results ever, has launched PsiMail, a remote e-mail package for the Psion Series 3a pocket computer family. PsiMail will also work on the Acorn Pocket Book 2.

PsiMail is primarily aimed at business users who run e-mail systems like Microsoft Mail and Lotus cc:Mail on an office network. However as Acorn has started to sell Microsoft Windows NT-based SchoolServer machines, PsiMail could be relevant to teacher or even students who require remote access to e-mail.

Connection to the e-mail server is made either through a GSM mobile phone data adapter or using a standard PSTN phone line over a modem like a Psion 3Fax.

Of more interest to Acorn users generally would be a native Internet e-mail client and the good news is that this is scheduled to be introduced later in the year, according to Psion. Psion PLC, tel: 0171-262 5580, fax: 0171-258 7340.

Apologies

The Regan Files interview with Richenda Wood last month contained a couple of mistakes. The fifth paragraph should read that Richenda worked as an account executive in a PR company and that she *'did* think it was inappropriate to diversify so much'. Also, in the seventh paragraph Microwave should read MicroWay.

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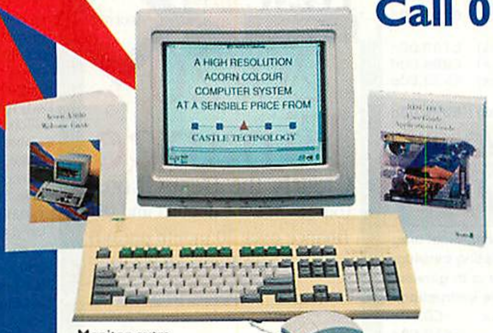
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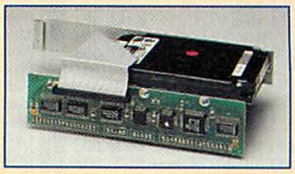
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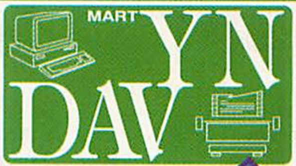
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E.&.O.E 24-04-96

Some incentive

IT is very easy to criticise — much less to offer constructive criticism. But here goes: The question of how to break the PC stranglehold in business is a difficult one. For *industry-standard* read *industry-habit* and all bad habits need breaking.

Acorn now have an excellent platform — fast, easy to use, easy to network, colourful and complemented by a full range of low-cost industry-habit PC cards. So we are halfway there but not really competing on a level playing field. Economies of scale are difficult to achieve with a small user base.

PCs are relatively inexpensive by comparison and whereas the IT Department might be convinced of the benefits of a multi-platform approach to data processing it is the bean counters in the Accounts Department who really need to be convinced. You can tell them, you can show them, you can argue with them but the bottom line is cost-driven.

This is where Acorn could help themselves to a slice of the market. We need an incentive scheme for business. A sort of 20/20 for business. There are special prices for Education and rightly so and there are low-cost finance schemes for individuals — the 20/20 Scheme. Business has no such incentives and would be expected to pay the full retail price minus any bulk discounts.

The difference between education price and retail price on a top-end Risc PC system currently stands at about £250 — a lot of money to the bean counters.

Reduced profits

I know any such Business Scheme would reduce profit per system but might be offset by the number of systems per order. Any business it generated would be new business. All the scheme would require would be an official company order. Perhaps a signed declaration that to qualify for whatever discounts were available, the computer would be used for business purposes would also be required.

The discount need not be as great as to Education but should bring the costs into line with an individual purchaser using the low cost finance scheme. Discounts should increase in direct proportion to the number of systems ordered.

Could the Scheme be abused? Any Scheme is open to abuse but all VAT-registered businesses would claim back the VAT on the purchase and the Inland Revenue are traditionally very heavy on those abusing the Treasury.

Businesses not registered for VAT might need to provide more details as to proposed use and it may be cheaper for them to use the current 20/20 Scheme or its replacement.

It is just an idea and one that has probably surfaced at Acorn House in the past. It might be just enough to catch anyone toying with the notion of giving Acorn hardware a go and particularly now that Acorn have a decent portable computer at last.

Presentation makes perfect

A PARTICULAR area of business that has been poorly served by Acorn is presentation software – packages for the creation of presentations either free-standing, rolling demonstrations or the production of OHP slides.

I know Acorn programs exist but it has been difficult to say that anything of the sophistication of *Freelance* or *Powerpoint* has existed. Even those packages that have been around for a while have been hampered by the lack of full 256 colours until the arrival of the Risc PC.

That has changed and the Risc PC with its high end colour modes and a 17 inch, or bigger, monitor makes an excellent delivery platform for presentations. This is particularly the case when these are combined with programs like *Studio24 Pro* from Pineapple Software (tel: 0181-599 1476) which can so easily be used to produce the graduated fill backgrounds so beloved of many of the PC packages. Of course we have !Draw and !Paint on every machine and an ever-increasing library of good quality clipart.

Presentations may appear trivial to those outside the business world but they are an extremely useful tool particularly if you are trying to persuade someone as to the validity of your position or advertise a product at a trade show.

One package that I have some experience of in this area is *Noticeboard* from The Really Good Software Company (tel: 01582 761395). This relatively inexpensive package is a delight to use and can present pages to a high standard. I intend to report further on its use in a future issue once I have researched an actual case study as to its use.

Welcome back

I have been shocked, stunned and amazed at the response to the return of the Business Page. I have had phone calls, e-mails, and letters, all of encouragement and support.

Many offer case studies as to Acorn use in businesses and I intend to feature these in forthcoming issues.

We seem to have tapped a wealth of real business use — keep the stories coming. One slight word of warning though — the Business Page is currently bi-monthly so please be patient and I will run a feature on each use in coming months.

News items

In coming months I will make constant references to Internet addresses.

You may think it is all hype but I know better. If you want convincing of the benefits of a web presence and some good web pages to your business, point your browser at Acorn's own pages or www.cybervillage.co.uk /folio/printmaker.

Not got a browser? — then now is the time to invest in one. The Net may be somewhat overhyped but as a medium for advertising your products and services it has no real comparison.

In print on vinyl

It's a common complaint of Acorn users that many commercial printers are unable to handle their output when it comes to production.

One company that can output to self-adhesive vinyl and is able to cut masks for screen printing from RISC OS generated files is PrintMaker.

Contact Chris Mercier on (01734) 561112 or email mercier@argonet.co.uk for further information.

Contact

You can contact me, Mike Tomkinson, by post at the usual *Acorn User* address or by dropping me an e-mail at: *aubizniz@idg.co.uk*



Another dimension to the Acorn graphics scene

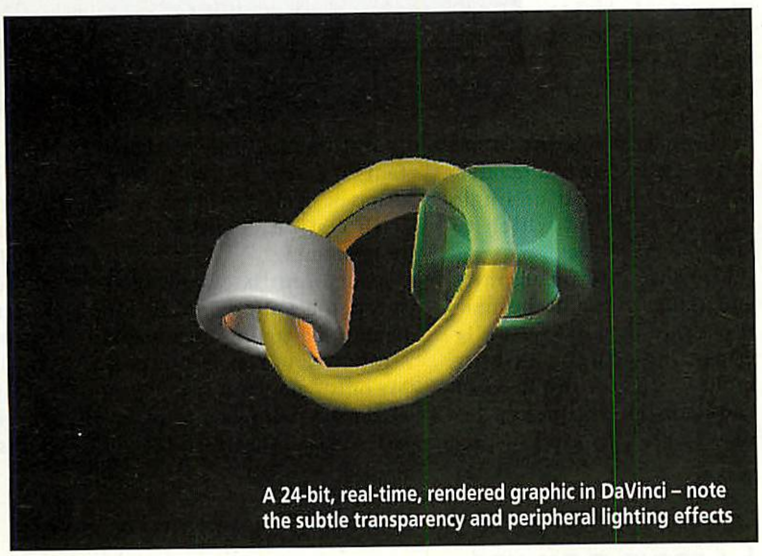
BY the time you read this, Aspex will have released the first version of the first *DaVinci* 3D applications. *DaVinci 90*, the most basic of the *DaVinci* series is aimed at the low end user and as such, is an entry-level package. Much of the development time has been channelled into the parallel development of the features to be found in the more powerful versions of *DaVinci*. As a result '180 and '270 will be released in the near rather than distant future.

Sticking with the present, '90 has the ability to import files from the popular *Architech* package as well as the industry standard DXF and emerging VRML (Virtual Reality Modelling Language) which at present is fighting for the Internet's standard 3D file format.

The modelling tools are all very standard, the application front end is simple and intuitive and the general feel of the program in operation is as familiar as it is easy to use. It is fast to render its images even using its highly impressive gouraud shading based 'environment mapping' technique and operates in all of the standard Acorn true colour screen modes. Additionally, it features basic animation facilities adding life to your real-time rendered models.

I would not like to say much else at this stage as the present beta test version should not be one on which to base concrete conclusions. However, it promises to be a fast and usable starter's modelling package; a must for present *Architech* users for its powerful rendering engine and a potent taste of things to come in the much anticipated *DaVinci 180*.

Aspex are on (01822) 611061



A 24-bit, real-time, rendered graphic in DaVinci – note the subtle transparency and peripheral lighting effects

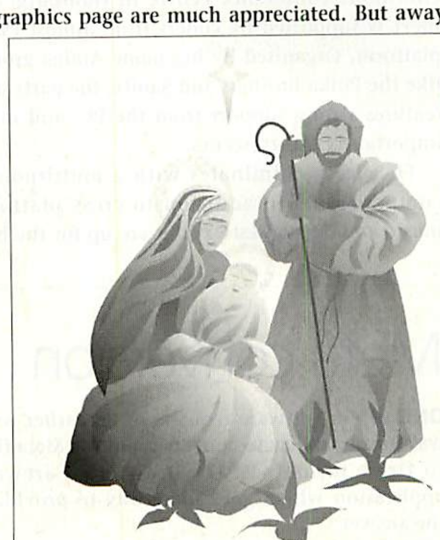
Pic of the month

FIRSTLY I would like to thank all of you who have continued to send in your images for inclusion on the next CD-ROM. All your efforts and support for the graphics page are much appreciated. But away from all that, and on to the issue of Pic of the Month, which this time has been awarded to Penny McEvoy for a lovely image called Nativity created using *Artworks*.

The image was actually sent in just before Christmas last year which would have been a far more appropriate time to have published it. However, thanks to the wonders of e-mail and because the Christmas issue was in print well before the festive season the pic has had to wait until now to claim victory.

Created using a 5Mb Risc PC and an A6 graphics tablet – nice to see people using their graphics tablets to good effect – Nativity impressed me with its use of very simple lines to paint subtle facial features, and graduated fills in a few basic shapes composed to create fine impressions of the characters' garments.

Remember that £20 and a free slide recording from the Digital Darkroom could be yours, if you enter, and win, the one and only Picture of the Month.



BV returns

I am pleased to report, that after a short departure from dealing with the Acorn platform, BV Computers, London are back. For the expanding graphics user BV are a must because of their stunning printer (including the Epson Stylus – see below) and monitor offers and their equally impressive repair expertise.

BV
Tel: 0181-965 4056

Superjet come back

The Epson Stylus colour, or Epson Stylus Colour II as it is now known is arguably the finest colour inkjet that £200-£250 will buy you. Epson, boldly makes this claim with promotional leaflets directly comparing the quality printouts from the Stylus Colour against Canon and HP offerings. But a couple of months ago, in reply to a letter I received, I said there was a great deficit in quality and speed using the Acorn to drive the Epson when compared to the Mac.

I was swiftly corrected in my explanation by a number of people who told me that Printer Drivers 1.52 included a MicroWeave option for 720dpi error diffused printing for the Stylus Colour. I promptly upgraded my Printer Driver version, and lo and behold, the Acorn now produces the same quality in approximately the same time as my Mac. However, the fact still remains that the original Epson software has far more, beautifully interface controls over such variables as diffusion density, colour correction, and print speed.

The take home message is that if you own an Epson Stylus, upgrade to 1.52 and you'll be amazed by the capability of this wonderful printer.

Contacting me

You can contact the graphics and DTP page by writing to me, Jack Kreindler at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by email to augrafix@idg.co.uk.

Public Domain

RiscWorld PD

After several recent attempts to start up new PD libraries, unfortunately followed by relatively little success, another PD enthusiast is launching a new source of PD. Daniel Hayes is starting his own library, called RiscWorld PD. As well as having plenty of experience in the world of PD, Dan is a regular Internet and BBS user, making his library an invaluable source of PD for modem-less PD users. I think this is a very important area that Dan should take advantage of.

Discs cost £1.50 for DD and £2.50 for HD. RiscWorld can be contacted at: R.W.P.D, 1 Standhouse Lane, Aughton, Lancs L39 5AR. If you're on the net and want to order by email, contact: Daniel.Hayes@Argonet.co.uk.

AfterDarc Software

AfterDarc has several projects in the pipeline, as well as maintaining its PD library. The brand new catalogue software should be ready soon, as well as an array of programs including everything from command line utilities to an 'interactive fiction game'. I'll keep you up to date with developments in this column.

UnCrunch

One of the incredibly handy compaction utilities that can be found in the tool box of any self respecting coder is the *Crunch* application by Bernard Jungen. *Crunch* compresses executable files and appends some decompaction code to the result. This produces a self extracting archive that can be run just as easily as the original code.

Until now, it was impossible to un-crunch files created with *Crunch*. However, help is at hand from a little command line utility by Dizzy Wizard Software that does all the work of decompression for the price of a simple instruction entered at the command line. *UnCrunch* is available from Arcade BBS.

Coder's Revenge



AS revealed in a previous PD column, the very popular German scene magazine, *Coder's Revenge*, is moving to a bi-lingual format to open the disc mag to a UK audience. The first partly English language CR is here, and it was well worth waiting for.

Its first appearance is reminiscent of typical Amiga disc magazines while maintaining that strong Acorn enthusiast feel.

The magazine opens with a little demo effect before offering either a multi or single tasking mode in which to view the magazine.

The standard of graphics and ability to run in the desktop or in a more visually appealing single tasking mode indicates the level of work put into the project. It's nice to see this kind of presentation. In terms of content, the articles are mainly demo or demo group oriented with a strong emphasis on programming.

User input is encouraged through a voting section for demos and coding software, a strong scene feel is present. My only complaint is the lack of more articles – a problem with most other disc magazines. Hopefully if English readers get involved, plenty of effort will be spent to keep the magazine bi-lingual.

Coder's Revenge is available on the net from the Stuttgart ftp server, or direct from the magazine's authors, the group Archiologics, at: David Schalig, Raoul-Wallenberg-Str.44, 12679 Berlin, Germany.

Symposium

BY the time you read this, one of Europe's biggest scene parties will have taken place in Germany. Running for all of 72 hours in an enormous conference centre in Hamburg, the meet is supported by coders from almost every platform. Organised by big name Amiga groups like the Polka Brothers and Sanity, the party also features strong support from the PC, and more importantly, Acorn scenes.

The party culminates with a multitude of competitions. In addition to cross platform music and art contests, prizes are up for the best demos on each of the computers featured at the party. Reports that Acorn are offering a RiscPC to the winner of the Acorn demo competition have understandably acted as a major incentive for demo entries and I'm sure will provide demo fans with even more graphics to check. Full marks to Acorn for getting involved at this kind of level.

Results of the competition winners and details of the demo entries will be featured in the next column, but in the meantime, watch out on the stuttgart ftp server on the net for the entries.

Meta conversion

ONE of our software requests in an earlier issue was for the ability to convert Windows Meta files to Draw format. WMF->Draw is a Careware application which goes some way to providing the answer.

Although not all object types are supported, author Keith Sloane is interested in developing the program further. Keith can be contacted by email at: keiths@cix.compulink.co.uk and his application is on the Arcade BBS and available from Five Star Marketing on disc U43. Thanks to Dave for finding this invaluable app.

Games

PLENTY of news from Germany this month, with several new PD and shareware games hitting the scene.

Xylon II

First up is *Xylon II*, a fantastic shareware shoot 'em up coded almost entirely in BASIC. Now don't let that put you off, because this is one of the best PD games I've featured in this column since the time when PD enthusiasts used to mention the name 'Tom Cooper' with alarming regularity.

After the unusual 'Spots' game, Patrick Hinrichs has created yet another excellent PD game. It's of the sideways scrolling landscape type, where you control a little spaceship with the task of blowing loads of weird and wonderful aliens to kingdom come. The graphics are very varied with all kinds of flying aliens, limpet guns and strange bubbles of water that engulf your ship if you're off guard.

Power ups appear with useful regularity equipping your ship with additional guns, drones and rockets. An options screen allows you to tailor the effects used in the game to the speed of your computer. If you are running on ARM2 it's possible to turn off the quantity of explosions and some of the levels of parallax graphics.

I did find the game a little on the hard side. You are equipped with plenty of lives, but one hit from an enemy spaceship is enough to send your ship crashing into the ground and it can be a little bit frustrating when you're hit by an alien that comes on to the screen behind you leaving you little chance to get out of the way. Fortunately the two-player mode sets the odds of players versus alien scum a little more evenly, but watch out for key clashes on a RPC keyboard. *Xylon II* is available on disc GA72 from Five Star Marketing.





Space Taxi

Space Taxi is a small Freeware game in which you control a rocket powered taxi. Vaguely Thrust-like in terms of gameplay, the object is to pick up fares by landing your taxi by waiting customers and transporting them to their required destination. The controls provide the ability to thrust in any direction or put your undercarriage down, allowing you to touch-down on a landing pad.

Unfortunately this prevents you from operating your thrusters, necessitating last minute deployment of the wheels. The only drawback is the small number of levels provided. Three isn't really enough to keep you going for long. To sum up, not an amazing game, but certainly worth a look. *Space Taxi* is on disc GA72 from Five Star Marketing.

Infinite Mass

The final offering is a rather nice puzzle game. These kind of brainteasers seem to be very popular in the PD field, where the design and production values don't really need to be too high as long as the game is playable. *Infinite Mass*, by Armbugs, is very unusual in its gameplay. The overhead view is very reminiscent of an arcade style game, and the Help text informs you that you have to move a frog around a maze and collect all the pills on the screen.

What it doesn't tell you is that you are working against a very harsh time limit and that you can only control the direction of your frog when it crosses special control squares. Its all rather hard to explain on paper but what it comes down to is a wickedly addictive puzzle that requires a lot of experimentation and the ability to formulate and remember the correct path to take across the screen.

The features are good with an all important password system, essential for this type of game. There's also a comprehensive and easy to use level editor. Functioning in the desktop, the editor provides all the features you need to formulate new puzzles. Just remember to place any you create in the public domain!

Infinite Mass appears a little strange at first glance, but do persevere because it's a great little game. *Infinite Mass* can be obtained from Five Star Marketing on disc GA72.

StickyEdge

Another little module to enlarge your boot up sequence. It runs a special check whenever you drag a window off the edge of the desktop. The window will be forced to stop at the edge of the window unless you move it much further off the edge. This has the effect of making it stick to the edge, allowing you to line it up at the side of your desktop very easily. *StickyEdge* is on the Arcade BBS.

Recommended PD Libraries

The Datafile
71 Anson Road
Locking
Weston-Super-Mare
BS24 7DQ

Naked PD
'Fayence'
Fulford Road
Stoke-on-Trent
Staffs ST11 9QT

Arch Angel PD
PO Box 41
Exeter
EX4 3EN

APDL
39 Knighton Park Road
Sydenham
London
SE26 5RN

Five Star Marketing
4 Shepherds Walk
Bushey
Hertfordshire
WD2 1LZ

Beebware PD
83 Forrest Road
Huncote
Leicester
LE9 3BH

ARM Club PD Library
Freepost ND6573
London
N12 0BR

Contacting me

You can contact the PD page by writing to me, Paul Wheatley, at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP or by email to aupdpage@idg.co.uk

DataView Pro

THE Pocket Book's database has never been much to shout about and a number of packages have been released to try and improve this situation. One of these, *DataView*, was reviewed in this column some time ago and now Purple Software have released *DataView Pro*, a completely re-written and vastly improved version.

DataView Pro (*DVP*) is a complete replacement for the PB's database and provides all the features of *Cards* and many more including card and list views, user definable groups, single and multi-level sorting and searching and the ability to define the content of a field as either number, date, currency or text etc.

The groups function is, in my opinion, a good enough reason alone for buying *DVP*. It allows the user to create up to eight named groups which can then be called up at the touch of a button. In a school situation the groups could be your teaching classes, and by selecting the relevant group you can access the information on the class you are teaching within seconds – the hassle of searching for the relevant pupils has gone.

DVP's searching and sorting options are both fast and comprehensive. Sorting and searching can be both single and multi-level with a 100 record database taking less than a second to sort. Searching also supports wildcards as well as and/or/not operators.

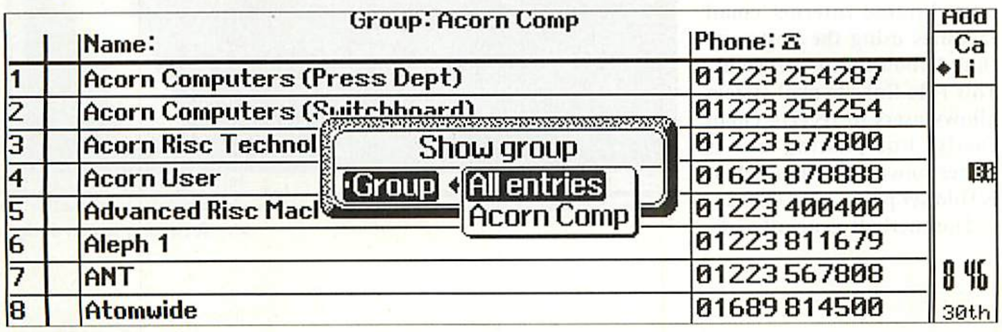
The printing options in *DVP* are some of the most comprehensive in any Pocket Book program. *DVP* allows you to print out labels (the program includes definitions for the most common labels including the Avery range), reports in both list and card format and the ability to mail-merge in conjunction with Write.

DVP contains numerous other enhancements to Cards including password protection of data, the ability to act as an address book for 3-Fax and a split screen option. Optional modules are also available which enable the Pocket Book to read barcodes and send messages via the SMS mobile phone message system.

Overall *DVP* is an excellent application. Every feature of *Cards* seems to have been looked at and improved with numerous other features added for good measure. Very Highly Recommended.

DataView Pro costs £69.95 on SSD and £59.95 on PC disc.

Purple Software
Tel: 0171-387 3111



DataView Pro in action

Storks and NewsPADs

ACORN Risc Technologies' new web server contains a wide range of data sheets on ART's products range. Two of these contain details of new RISC OS based portables: the NewsPAD and the Stork.

The Stork is a compact sub-notebook computer powered by a 32MHz ARM7500 chip and will be supplied with an external disc drive and an internal PCMCIA slot. The machine will have an inbuilt tracker ball, 16 bit sound and will be supplied with either a 10.4inch colour or a 9.5inch monochrome screen. The Stork also features a 'Freeze Mode' standby system which enables the machine to be suspended in any mode of operation and returned to the same state up to five days later.

The NewsPAD is a tablet-style portable computer with a colour touch screen and is powered by the new 40MHz ARM 7500 chip. The NewsPAD contains all the features of the Stork but with a better display unit capable of displaying 32,000 colours at 800x600, a bi-directional infrared link for communicating with various I/O devices such as the HP LaserJet 5P and provision for a CCD camera module.

Both the NewsPAD and the Stork can hold up to 128Mb of SODIMM memory boards removing one of the biggest limitations of the old A4. Optional docking stations will be available for both systems, enabling them to connect to external monitors, ac power supplies and various input/output devices.

Neither product is currently available but the specification of both machines is enough to make your mouth water. If you want to know more check out ART's web site at: http://www.art.acorn.co.uk/.

More portables

In next month's issue of *Acorn User*, the Education and Network pages will feature a wide range of Pocket Book software including reviews of *AutoRoute*, *Telenote*, *PondLife* and *PocketLab*.

Pocketable Media

Pocket Media is a new company set up to develop high quality educational programs for the Psion 3a and the Pocket Book II. The company has a large number of programs due for release over the next few months including two which should be available as you read this : *Pond Life* and *The Three Little Pigs*.

Pond Life is the first program from the PocketExplorer series and allows children to explore a pond environment. Children can identify and learn about the different creatures that can be found in a pond. The program is ideally suited to KS2 and adds a new dimension to Pocket Book usage. Other titles planned for the PocketExplorer series are *Farm Life* and *City Life*.

The Three Little Pigs is a version of the popular educational CD-ROM. The Pocket Book version contains all the animations, sounds and graphics of the full version.

As mentioned last time, with the launch of the MediaRange, Acorn is trying to show there are more uses to the Pocket Book than the ones people immediately think of. This has been proven with the launch of PocketMedia and the two multimedia-style programs mentioned above.

Pocket Media
Tel: (01234) 349261

Contacting me

You can contact the Portables page by writing to me, Mark Taylor at *Acorn User*, Media House, Adlington Park, Macclesfield SK10 4NP, or by email to auport@idg.co.uk.

Jolly Roger renumbered

BT have changed the number issued to Sysop Daniel Garrod for his Cambridge-based Jolly Roger BBS, mentioned in the April issue of *Acorn User*. The number to call is now (01223) 264347.

URL of the month

Computer consultant and software developer Paul Skirrow of *Octopus Systems* in Ipswich has opened his personal and company Web site. They contain descriptions of Paul's personal interests and hobbies as well as details of *Octopus Systems*' Acorn dealership, software activities and products. There's a useful section on designing Web pages with links to helpful resources, such as the *CERN* HTML style guide, and a links page to all the Internet search engines worth knowing about.

http://www.octosys.co.uk/

Digital Oasis Web magazine

Digital Oasis, the new Acorn based online E-magazine co-ordinated by Kai Andersen should have its first full issue out about now. A recent draft edition gave shape to forthcoming issues, which will include computer news, Internet related topics, games and entertainment, Public Domain software, their Digital Avenue multimedia section and Soft and Hard, reviews from the Users' point of view. Digital Oasis will have its own permanent web URL but try this one for now:

http://www.argonet.co.uk/users/aok/

Contacting me

Send me any Acorn-interest URLs you find, and I'll publish a selection. You can contact me by writing to David Dade, *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield, SK10 4NP, or by e-mail to: DaviD@arcade.demon.co.uk, or mail #2 on Arcade BBS 0181-654 2212.

A BBS from the blue

TOBY MacKenzie now has a dedicated phone line installed for his BBS and it's finally online and already attracting new callers. The Thunderbolt BBS is located in Orpington, Kent and runs *ArmBBS* software on a Risc PC 600 using its internal hard-disc, CD-ROM and sound card, coupled to a 14400 Sportster modem, which gives local call access to the London and south suburban areas.

The telephone line is supplied by Nynex and costs £25 to install and £7.11 a month rental (inc. VAT) – quite reasonable running costs. However, even £85.32 a year can be a sizeable amount to find for some sysops. Toby and his co-sysop Helen Rayner are school students.

There are some special features including free small-ads for users' surplus items and, probably a first among Acorn interest BBSs, a Recipe of the Month section.

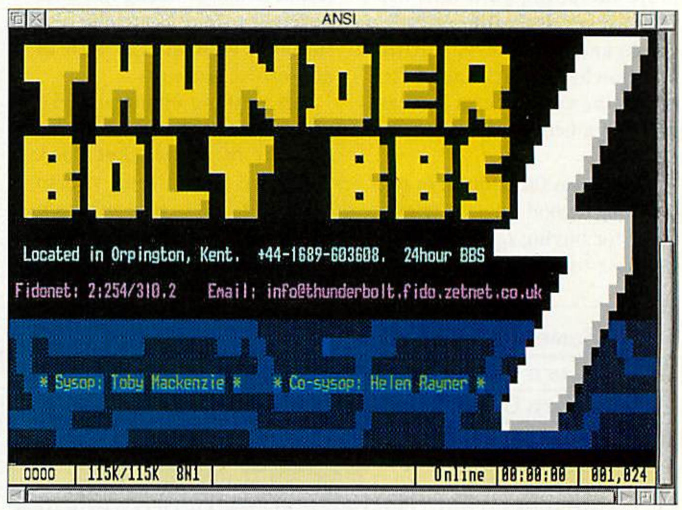
The BBS has plenty of local message areas and has FidoNet Echo connections to the Werewolf BBS, and offers users limited Internet email facilities using the hostname thunderbolt.fido.zetnet.co.uk. This Fido-linked email system allows users to receive email easily, but posting out is rather unwieldy. Thunderbolt is FidoNet point 2:254/310.2

Thunderbolt generally specialises in online features including The Spraywall Door – a sort-of invitation to digital graffiti, the Good BBS and Good RSDFS BBS guides, and the popular ARMsRace 'Run-your-own-BBS' game.

Several separate and growing 'Freeform' file-bases are available including a section devoted to the file lists from other BBSs.

Toby and Helen may be among the youngest Sysops of any Acorn BBS, but their great enthusiasm and inventiveness should make the BBS a success.

The Thunderbolt BBS
(01689) 603608



A striking screen design

Which Internet Access Provider?

IT'S certainly difficult to decide which company offers the best combination of access, software, service and support. Several Web sites specialise in collating this information, and the list of access providers is lengthening daily. Here's a look at three that caught my eye.

KENTnet Internet Services charge £20 inc. VAT to set up a domestic account. For the monthly charge of £15 inc. VAT, you get a full-featured service, including fixed IP address, V34 28k8bps access with a maximum of 15:1 user-to-modem ratio, unlimited Internet access, local call for Mid and West Kent area codes, newsgroups, WWW, FTP and POP3 Email, and free software, but not for Acorn machines. For more details see this URL http://www.kentnet.co.uk/membership.htm or email info@kentnet.co.uk.

Moose Internet Services provide local call access to an area which includes most of Middlesex, Hertfordshire and Buckinghamshire and the London area as well. Their lines use V34 modems and ISDN access is also available, as well as reduced rates for some Bell Cablemedia customers. Their £10 a month or £100 a year exc. VAT charges get you a userID and up to three POP3 e-mail accounts, 500K of Web space and access to their newsgroup server. For details see this URL http://www.moose.co.uk/moose/MOOSEISP.html or email info@moose.co.uk.

A service that's hard to beat on features, price and technical support is provided by Zetnet Internet Services Ltd, based up in Lerwick, Shetland Isles. Their standard account (all inc. VAT) costs £25 to register and £6 a month or £65 a year, and for this you get Windows software for a dial-up Internet account with email address, offline mail and news readers, FTP, WWW, Telnet, Archie and IRC clients, and a 250K WWW site. Amazingly, you get all this with total UK coverage local-call access. For more information, see this URL: http://www.zetnet.co.uk/zetpages/info.html or email info@zetnet.co.uk.

For lists of UK Internet access providers, try http://www.connect.org.uk/techwatch/providers/index.gif.html or http://www.limitless/inetuk/providers.html.

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510MB IDE	n/a	n/a	n/a	£159	£159	n/a
850MB IDE	n/a	n/a	n/a	n/a	n/a	£159
1.0 GB IDE	n/a	n/a	n/a	n/a	n/a	£195
540MB SCSI	n/a	n/a	n/a	£139	£139	£139
850MB SCSI	n/a	n/a	n/a	£159	£159	£159
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1.3 gb with 1 cartridge	£849

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A4000 2-4mb	£74
A5000 2-4mb	£74
A5000 8mb	£199
A300/400 8mb	£199
RISC PC 4mb	£59
RISC PC 8mb	£129
RISC PC 16mb	£call
RISC PC 32mb	£call

SOFTWARE

RISC OS 3 (chips only)	£32
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EPSON GT-5000 — A4 Flatbed 300x300 dpi in 24 bit colour SCSI Interface **£389**

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COURIER V.34 Dual Standard — ArcFax S/ware £28, ArcComm S/ware £39, Voyager Internet suite £59 — **£319**

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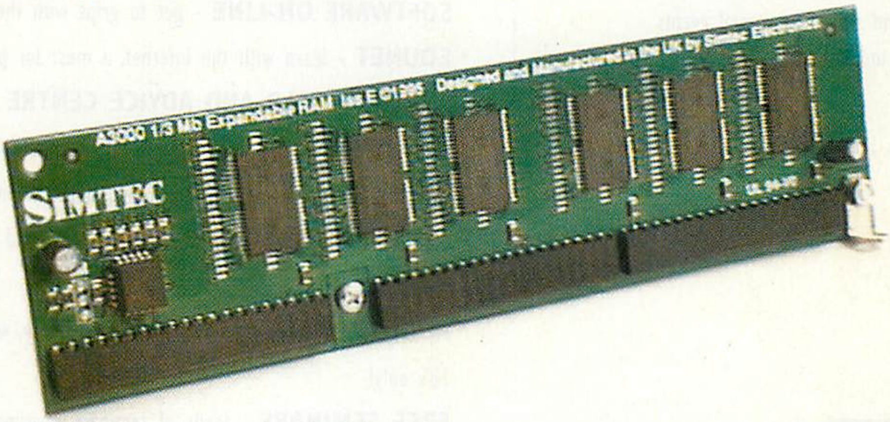
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Memory Solutions for the A3000.....

At Simtec we continue to support all 32-bit Acorn machines. Although A3000 machines have not been in production for some years, that does not mean we have not continued to refine the design of our memory upgrades! Originally 4Mb boards used 24 chips, but developing technology soon rendered this design obsolete, enabling the chip count to be reduced to 8 and now only to 6. The lower chip count lessens the risk of overloading elderly power supplies, especially if hard drives or network cards are fitted.

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Baka Chal

Xavier Software

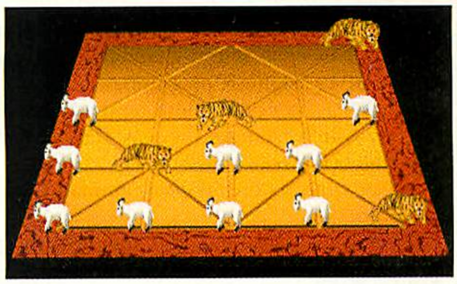
WELCOME to Baka Chal! This is an ancient Tibetan game, normally played on a beaten brass board, with the pieces made from cast brass. This is a strategy game fought between four tigers and twenty goats — you play the goats while the computer plays the tigers.

The game starts with the four tigers at the corner points and all the goats off the board. Click on a point to add a goat, and a tiger will move — computer's turn.

If a tiger occupies a point adjacent to a goat, and the point on the far side of the goat is free, the tiger will jump over the goat and eat it. It's a bit like Draughts in this respect.

Your aim (firstly) is to get all of the goats on the board. Once they are all on, you may move one in your turn.

To move a goat, click on it (the goat looks at you), and then click on the point to which you wish to move. If you change your mind, click on the goat to deselect it. Pieces may only move along the marked lines on to the intersection points.







The aim of the goats — once all of them are in play — is to trap the tigers so that none may move. If you succeed, you win. The tigers must eat four goats to win.

Clicking Menu over the board will offer the option of restart or quit. The display looks best in a 256 colour mode (15 or 28).

This program is PD, please read the help file for further information about it and *Xavier Educational Software Ltd.*

LazyPrint

D. J. Crennell

LAZYPRINT sends simple text or Draw files to a Hewlett Packard laser printer, allowing easy selection of printer parameters such as paper orientation, margin sizes and hardware fonts for text printing jobs such as program listings, simple letters and address labels. Draw files can also be printed in either orientation of the paper and at any magnification and position on the page.

It was written because I am much too impatient to wait while the Acorn printer driver makes up a graphics page using bitmaps for characters. The Computer Concepts Turbo driver prints a text page faster, but much slower than the time taken to print the same page using the printer hardware fonts and !LazyPrint.

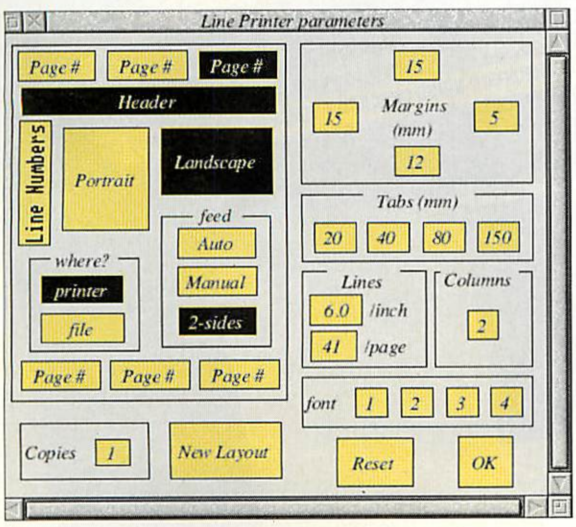
!LazyPrint is not a printer driver, it only sends existing files to the printer. It does not communicate with other programs so cannot be used from word processors or Desktop Publishing packages.

Operating Instructions

Double-click on the !LazyPrint icon to load the application onto the Icon Bar.

For text files, set up the page layout parameters by clicking Select over the icon on the iconbar to show a window where you can select parameters. Then drag text and Draw files to the !Lazyprint icon.

Text files will be sent straight to the printer; Draw files will open a window to allow positioning of the image on the page.



The output may be printed or sent to a file of type PrintOut (FF4), which can later be sent to the printer by double-clicking over it provided that the !LazyPrint application has been seen by the filer. This can be useful for frequently printed files.

Text Parameters

This window is in various sections:

The top left area shows the page layout including:

- Page orientation (portrait/landscape)
- Six positions for a page number (top/bottom and left/middle/right/)
- Possible heading which shows the complete file name and file date
- Whether the lines should be numbered — sometimes useful for program listings
- Whether the output should be sent direct to the printer or to temporary file for printing later
- How the paper should be fed to the printer. The three possibilities are to take all the sheets from the feed hopper, to request that each sheet be manually fed or to request that odd/even numbered sheets come from the hopper/manual which allows easy double-sided printing.

Set the margin sizes in the top right area. Margins are measured in millimetres from the edge of the paper (not from the edge of the printable area) and hence have built-in minima. Note: no check is made on the length of the lines; if they are too long to fit on to the page, the extra characters are lost without warning; the right margin is used only to set up multi-columns and does not stop the printing.

Set tab positions in millimetres from the left edge of the paper. No check is made that the tabs are not off the right hand edge of the paper. See the help file on how to use the tabs.

Set the number of copies to be printed.

Finally set up the font for the printing. Up to four different fonts may be used in any one document. These are numbered from 1 to 4, the last three being accessed by embedded control codes in the text.

Your layout is now complete. To save the layout for future use, click over *New Layout* enter a name for your layout in the white icon, click over *Create* and then *OK*. The maximum number of layouts is 12.

Don't forget to save your new layout from the iconbar menu for next time.

!LazyPrint is shareware, see *ReadMe* file in the !LazyPrint directory for details.

DeskBarVu

Gudmundur Gunnthorsson

THIS application is used to monitor sound output coming from the computer's internal sound channels — it provides VU meters for most WIMP-based music programs.

There are a couple of options on the iconbar icon menu:

Delay, which changes the way the bars are updated, it makes them look better if switched on.

Speaker controls the *Speaker* command for those machines that support it.

Clicking on icon, makes it toggle through available display styles, which are:

- Rings which expand with volume
- Two bars which are indicate stereo volume
- Eight filled rings which expand with volume
- Two lines like an EKG meter
- Eight tiny lines which represent individual channel volume, or four left/four right
- Eight filled bars for individual channel volume, or four left/four right
- Eight triangles for individual channel volume, or four left/four right.

Clicking with Adjust makes the second, fifth and sixth appear more LED-y as on a stereo or VCR.

There are no known problems – this program has been tested on the full range of Archies available, with the exceptions of the A4, and R10x Machines. And it has been tested with:

- Armadeus
- PlayerCD
- Maestro
- Symphony3

Warning: This program takes a lot of processor power.

Regular items

- Run the Risc with the software to get data from the PC joystick
- *INFO contains a plethora of demos, utilities and applications to keep you busy
- Wimp C includes the beginnings of a special library of routines for creating applications

Also on the disc is the latest verson of the Careware package ClicBack.

Disc information

THE software on this disc has been compressed using *ArcFS 2* from VTi, and are opened by running a copy of *ArcFS* then double-clicking on the archive to open it. There is a copy of *ArcFS* on the disc.

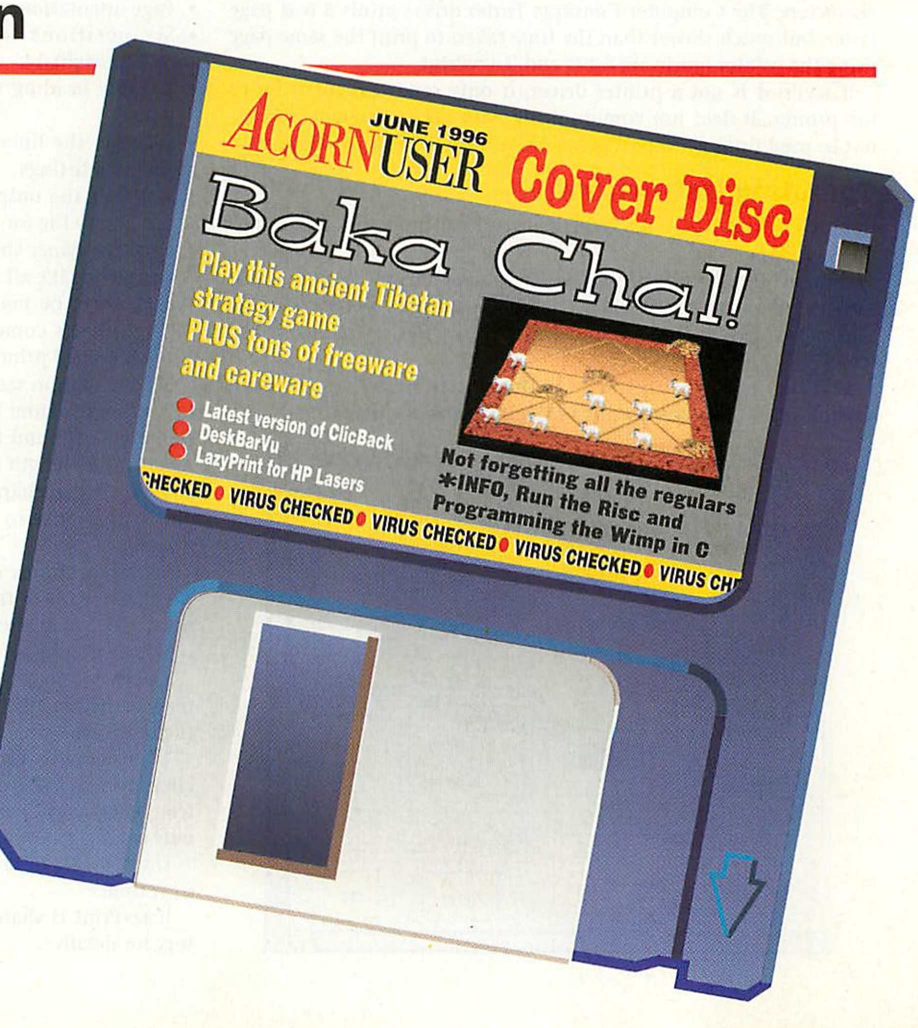
Most software will run straight from the archive, but some programs may need to be copied out of the archive before being run, uncompressing them in the process. Any program that saves a file to disc, for instance, will be unable to do so into the archives on the disc.

Faulty disc?

If your disc is faulty, test whether it will verify by clicking with Menu on the floppy drive icon and choosing Verify.

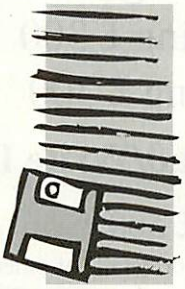
If it fails to verify or is physically damaged you should return it to *TIB, TIB House, 11 Edward Street, Bradford, Yorkshire BD4 7BH*. If it verifies successfully return it to the *Acorn User* editorial office at the usual address.

The *Acorn User* cover disc has been checked for viruses using *Killer* version 2.204 from Pineapple Software.



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Are you ready?

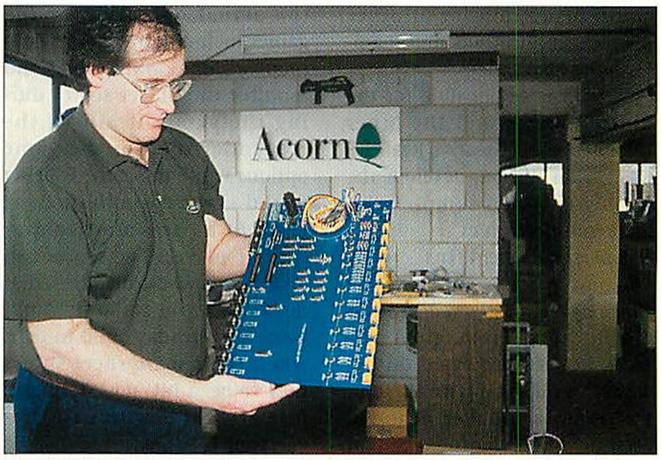
Karen Peach meets Creative Realities, the team behind the upgrade system for Quasar – Chromaburst

Quasar – been there, done that, got the scoresheet. For those who've played Quasar a few times that might be how you're feeling; for those who haven't let me explain.

Basically Quasar is a futuristic combat game played in an indoor arena. Players wear computer-controlled packs with sensors and carry a laser gun with which to zap their opponents. The lights are low in the arena and flashing lights, smoke and loud music all make for an intense atmosphere to play the game. Sounds pretty exciting and it is – at first.

Several games later you'll become rather skilled and begin to crave that bit more. You're not alone – which is why Creative Realities began developing an upgrade to Quasar, known as Chromaburst.

Patrick Arnold, Bob Voisey and Hugo Fiennes of Creative Realities introduced me to the wonderful world of laser tag.



How it all began

Quasar, the original system, was invented in Australia by a couple of students. In late 1989 Leisure Corp of Ireland bought Quasar outright, as Patrick explains: 'They developed it from what was essentially a toy into something they could sell and make some money from'. Sites began to appear with Leisure Corp selling guns, packs and basically all the kit that was needed for a Quasar arena to set up.

And all was going well until, as Patrick comments: 'With most games, if you don't come out with new things the players become bored, no matter how good it is, and unfortunately Leisure Corp never took the opportunity to revitalise the game by bringing out new, interesting things. It's the sort of thing people get used to very rapidly and except for a few diehards, people come a dozen times, get used to it, nothing has changed and they'll go to find something more interesting to do.'

That little extra

Hugo introduced Patrick and Bob to Quasar at the Bath arena. After playing a few times it became obvious to them that something more was needed to make a customer want to play again. So about three years ago they began to throw a few ideas around in the hope of making laser tag games more appealing in the long term.

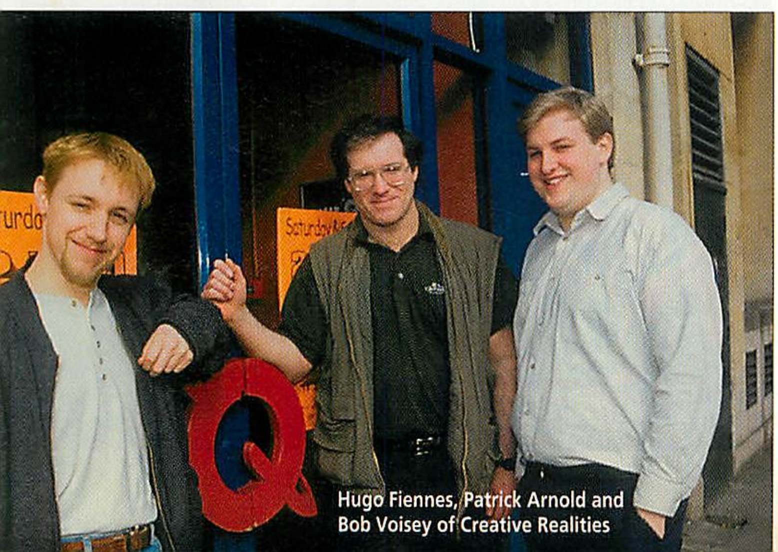
They checked out the different types of games – Quasar, LaserQuest and MegaZone and decided to concentrate on the Quasar system.

The reasons were that there was an arena close by, it was the largest seller and also the oldest and one most in need of an upgrade. Quasar used an infrared protocol rather than radio feedback (which the others used) for score updates. This meant that the player had to return to an energiser to upload and download data during the game otherwise they would run out of shots and not be able to continue.

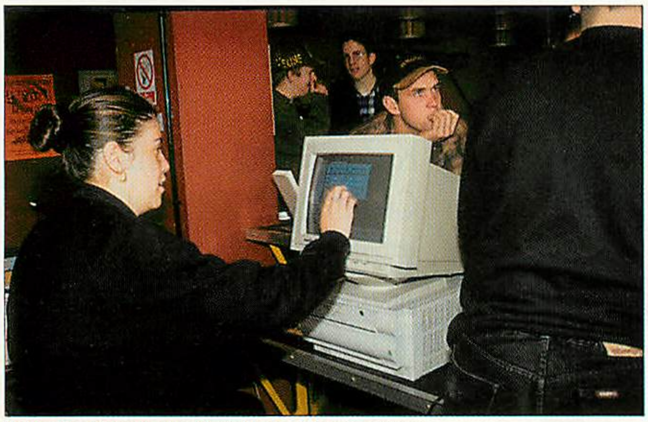
Although this gave players a goal, the problem lay in the limited amount of game options and variations available. Patrick says: 'It was quite noticeable, even at that point that they were starting to lose business and there were sites going bust every now and then.'

There was obviously lots of room for improvement, and so about two years ago Creative Realities was formed with the purpose of creating an upgrade for Quasar. They approached Mark Edwards, the owner of the Quasar site in Bath.

Patrick expresses how lucky they were to find him. 'He was one of the few people who was willing to talk sensibly, the usual response from a lot of people in the entertainment market is that they assume everyone is out to rip them off – which they usually are – and their response would be to get out and don't



Hugo Fiennes, Patrick Arnold and Bob Voisey of Creative Realities



Using the Chromaburst touchscreen for bookings

come back. His response was 'how much?', and it essentially went very well from there.' He has since become a Director of Creative Realities

Creative Realities are actually based at the Bath Quasar arena and from here they have developed and tested new features. Bob explains, 'basically as a Beta site the players had to put up with the occasional fault, on the other hand they get the software – the latest thing we happen to have done.'

The Acorn upgrade

The original Quasar system ran on PCs, but Creative Realities decided to use Acorn machines for their upgrade for various reasons. Patrick explains: 'We started off using them as we know them inside out. I've been using them for years and to be honest they were the best for what we wanted to do.'

Bob adds that for Creative Realities 'if the only choice had been a PC we probably wouldn't have bothered. It's genuinely saved us money – all the software has been the work of myself and Hugo whereas it would have been a bigger job otherwise. With RISC OS we could bring in a lot of other people's applications and seamlessly integrate them.'

Patrick is responsible for the digital design and the other member of the Creative Realities team, Dan Wilson, develops the analogue sound samples and analogue electronics.

Patrick explains how Chromaburst is set up: 'The main system is based around the Risc PC. The original network boxes were based on the A3010 and now the A7000, we've got a number of units, each of which controls a certain amount of equipment. We wrote some pretty simple networking protocols that were a lot easier to handle than the existing Acorn ones, specific to our application.

We could then control everything from the main computer and upload software to all the machines', which they have found works very well.

He also feels that as everything is in ROM there are advantages as software upgrades can easily be sent out on floppy discs or CDs.

All that's new

Bob explains some of the differences of the new Chromaburst upgrade: 'The first thing that is noticeable for the operators is that it's an integrated system designed to do everything that happens, everything that needs doing for a Quasar site. The old Quasar ran games, that's it. The new system takes advantage of the RISC OS multitasking system, it basically does anything you can think of.'

There are eight key modules:

- ***Game control:*** This handles the actual operation of the games including the controls to prepare games, print scores and monitor the player scores during the game. It allows the controller to alter the game options while the game is being played – even down to applying them to a particular team or specific player. The scores can also be viewed and altered if needs be – you certainly don't want the birthday child in tears when their score sheet shows they've been hit most. Easier to just alter the scores so that everyone is happy.
- ***Game options:*** This is used to set up the game options. There are many new options in the upgrade. Options can be set up in advance and preset options can be stored for future use. Time, Lives and Printing, Team Allocation, Gun, Shield and Power Up are just a few options that can be changed.
- ***Game Scheduling:*** This module allows 10 games to be set up in advance saving time as players can be allocated and options selected.

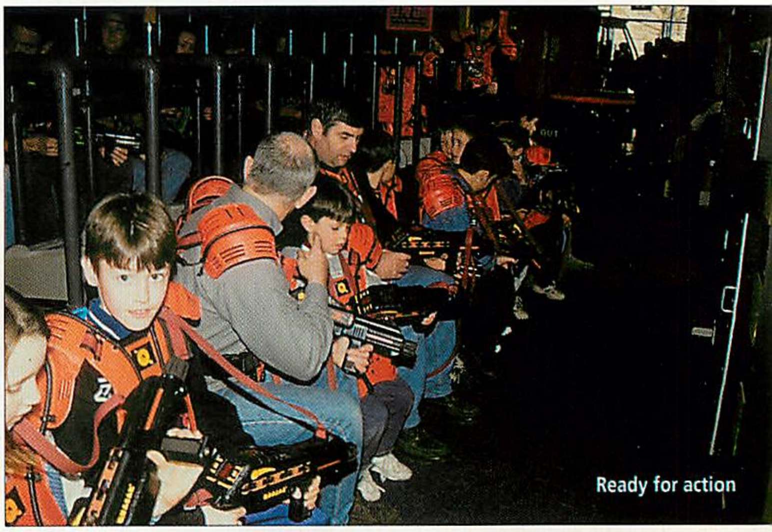


- ***Bookings database:*** Advance bookings can be made on this diary system.
- ***Player database:*** Includes player details including a photograph and previous scores.
- ***CD player:*** Plays audio CDs which can start and stop automatically in sequence with the games.
- ***Networking:*** This will provide inter-site mail facilities, sharing of membership databases and automated online software update installation
- ***Point of Sale:*** Acts as a cash till and bookkeeping system

The second most noticeable difference for the operators is the front end. Bob says: 'The old system ran off DOS and was very basic, our system runs out

The Chromaburst system

• Risc PC	
• Visual display unit	14in high resolution (VGA) monitor, low radiation, integral touch screen
• System memory	420Mb Hard Disk, 4Mb RAM (Fully upgradeable)
• Bar code reader	Swipe wand for reading membership cards
• CD-ROM drive	Double speed, for sequencing audio CDs and installing system software upgrades
• Smart-token reader	For reading game smart-tokens (player to pack registration)
• Keyboard and mouse	Can be used instead of the touchscreen
• Video camera	Monochrome for members' photos
• High quality laser printer	For scoresheets



Ready for action


The hunt is on

of RISC OS although you're hidden from it — things like pop-up menus and scroll bars are unnecessary for Quasar marshals. You have to work on the basis that the people who use the system are not computer operators. RISC OS lends itself towards this anyway because it's a fairly friendly type of operating system.'

He goes on to explain: 'The primary control mechanism is a touch screen, making it, in theory, as intuitive as possible. Not many marshals want to sit down and read a 250-page manual, they need a system that does what they expect, to that end we've also made use of the *BubbleHelp* system.'

Another improvement Creative Realities have made will increase the efficiency in terms of game turn-around. Bob explains: 'One of the biggest problems is that even if a Quasar site had all the customers it could handle, they can't get them through the door fast enough – can't get them in, briefed, play the game and out again as fast as people coming in the door.

'The way the original Quasar system works was a completely single-tasking idea, one thing at once. You set up the game, run the game, print the scores and then set up the next game. Our system is designed so that you can be doing a certain number of those things simultaneously. You can't be running more than one game if there is only one arena, but you can be setting up the options for the next game in advance, and on the latest version of the software, printing the scores while the next game starts, which used to waste time.'

Bigger and better

'The Chromaburst system doesn't so much add to Quasar as replace 90 per cent of it – we got carried away. The end result is that we completely replaced everything in the Quasar system bar the guns.' The guns have remained untouched due to the expense of producing the actual moulded casing. Also, if they had been replaced then Chromaburst could not be marketed as an upgrade, an important strategy as Bob points out, 'an upgrade sounds more attractive to the operators. Upgrade rings bells about not actually spending.'

Many of the upgrade features have been based on requests, complaints or moans from players. Patrick says: 'It's a vastly different system from our original specification and essentially much better, it's a hell of a lot bigger than the original design. It's one of those things that sort of grew, we started off with pretty modest aspirations, it began going more and more over the top, we eventually said we've got to stop making any major modifications.' It has essentially been finished since around New Year but the software is always been tweaked.

Chromaburst could mark a real turn around for laser tag arenas. With the thousands of options available a customer could play a different game every time. This, of course, will depend on the marshals changing options and basically making the most of all that is available.

Patrick sympathises that 'a new marshal may get totally overawed by what it is capable of doing', which he fears may result in all game options being selected, a few selected at random or simply the same options repeated from a previous game. This would result in either a stagnant situation or at the other extreme a game that could be almost impossible to play.

Done correctly a player would never become bored and if a player's scoresheet indicated that they were becoming rather accomplished, an option could be selected to confuse and make it more challenging again.

The Quasar arena in Bath has been running off the Chromaburst system for 18 months now. The original Quasar system was kept for a while as a backup with the two running side by side for about six months, the Quasar system turned off.

Bob explained that it was just as a safety measure in case the new system crashed and there were queues of eager tourists waiting for a game. He emphasises that they have rarely had any problems with only a minor crash every now and again. Chromaburst has proved so reliable that they can now confidently run without the old system as a backup which has since been sold.

Time to sell

Patrick says: 'You get so involved playing it that you don't get round to trying to sell it.'

There have been a couple of problems with EC regulations which have held up shipping but apart from that it's a matter of deciding the marketing strategies and distribution channels best suited to Chromaburst. Patrick feels that 'it takes longer and costs more money than actually developing the product in the first place.'

Chromaburst will be predominantly sold in the UK and Europe. There have already been enquiries from Canada, although they are rather more hesitant about selling there and in America as the situation is rather different. Q-Zar sites (as they are known over there) are franchised and they can only buy equipment which passes US safety regulations from Q-Zar themselves.

Creative Realities are still considering whether to proceed with selling there. They are aware that there are operators in the States who would like something better yet many of the players are still quite content as it is relatively new over there.

There are three main markets Creative Realities hope to sell to. Existing Quasar sites provide a ready-made customer base to sell the upgrade to. As Creative Realities have not gone out to get the maximum profit they have developed an upgrade that will provide a cheaper way of setting up an arena from scratch – buying the Chromaburst package and second-hand guns. Other potential buyers may be interested in the advantages of using a developed package like Chromaburst which also allows flexibility in the design of the guns, allowing them to incorporate whatever gimmicks they desire.

For an owner of a Quasar site, keeping the business profitable is probably more important than whether the customer actually enjoys the game, fortunately Bob says, 'because we *do* enjoy playing the game we've worked in all of our benefits along good sound commercial lines as well.' Chromaburst gives both the players and the owners what they want.

So for all of you who think you are laser tag masters, don't get too smug it might not last for much longer. AU

For more information contact:

Creative Realities Limited
The Ambury
Bath
BA1 1UA
Tel: (01225) 338585
Fax: (01225) 469900
email: sales@reality.demon.co.uk


Karen dresssed for a night on the town!

A3000 upgrades

Memory

1-4Mb	£99
1-2Mb	£39
(See also the "2nd user" section)	
1-2Mb (upgradable to 4Mb)	£48
2-4Mb upgrade pack	£72
4-8Mb	£199

The above upgrades are all constructed on four-layer boards, as recommended by Acorn. Gold plated connectors are used for reliable contact with the A3000 main board. There are no clips or wires, and no soldering is required (except 8Mb upgrade). Some older types of 2Mb board cannot be upgraded to 4Mb, but we offer a trade-in allowance. Please phone for details.

Hard drives

A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. Also suitable for the A3010.

80Mb	£149
120Mb	£185
170Mb	£205
240Mb	£230
RISC OS 3	£39
ARM3 (25MHz)	£129
(Dealer fitting recommended for the ARM3)	

A3010 2-4Mb RAM upgrade
Introductory price £79

A3000 4Mb RAM £99

A3010 upgrades

Memory

1-4Mb	£99
1-2Mb	£38
2-4Mb	£79

The 2-4Mb upgrade is constructed on a compact four-layer board. No soldering is required.

Hard drives

A range of internal hard disc upgrades is available. The upgrades simply plug into the internal expansion slot. For prices, refer to the A3000 section.

A310 upgrades

Memory

1-2Mb	£69
1-4Mb	£99

All our A310 memory upgrades are constructed using four-layer circuit boards. There is no other 300 series RAM upgrade which has been available for as long as this one, and which has the same reputation for quality and reliability. A fitting service is available.

4-8Mb	£199

Hard drives

A range of internal hard disc upgrades is available. Prices below are for complete systems, including metalwork, controller card and cables as appropriate. No specialist knowledge is required either for installation or use. A backplane is normally required in order to fit a hard drive.

IDE	
850Mb	£215
1Gb	£240
SCSI	
540Mb	£215
1Gb	£284
Backplane (4-slot, four-layer)	£49
Fan for above	£8
RISC OS 3	£39
RISC OS carrier board	£17
ARM3 25MHz	£129
MEMC1a	£39

A5000

Memory

2-4Mb	£69
4-8Mb	£199

Dealer fitting for the 8Mb upgrade is recommended for the 25MHz A5000.

A3020/A4000

Memory

2-4Mb	£74
Hard drives	
80Mb	£96
120Mb	£132
140Mb	£147

A400/1

Memory

Per Mb (up to 4Mb)	£38
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RISC OS 3	£39
ARM3 (25MHz)	£129

Hard drives. For prices, refer to the A310 section.

Various

Alsystems SCSI 2	£170
ARM3	£129
RISC OS 3	£39
MEMC1a	£39
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Fan filters (pack of 5)	£3
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4M, HD425 AKF60	£1148
4M, HD425 AKF85	£1426
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The CHRP architecture

Amit Gupta looks at CHRP and its future implications for Acorn users

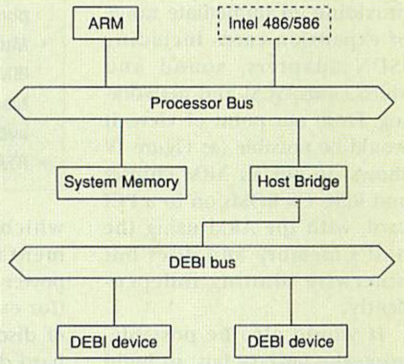


Figure I: Risc PC architecture

Early this year, Acorn announced plans to build its next generation of personal computers around the Common Hardware Reference Platform (CHRP) standard. Although Acorn's embracing of an emerging industry standard was welcomed by most, the announcements also created confusion as to the implications were for existing users.

What exactly is CHRP and why are Acorn so keen to get involved with it? What would the benefits of such machines be over existing Risc PC and A7000 technologies? Will such machines use ARM chips? Will they run RISC OS and existing software?

A new standard

CHRP is the new hardware standard for the next generation of personal computers. It was developed by a consortium led by IBM, Apple and Motorola and is widely recognised in the industry as the most likely successor to Intel-based PC computers. The potential power of a CHRP machine is formidable; such machines will be highly efficient, capable of running multiple operating systems across multiple 64-bit processors and provide speed increases of typically eight times over the fastest available Risc PCs, together with a huge software base.

It is too early yet to judge the impact which the CHRP standard (recently renamed the PowerPC standard) will have on the computer industry, but with the backing of almost all the industry giants it could spark a revolution of a scale not seen since the original IBM PC was introduced 15 years ago.

Figure I shows a block layout of a Risc PC which has been simplified so that we can look at it in relation to CHRP machines. The main processor is an ARM; a high-speed bus (which we will call the processor bus) connects it to the system memory and video system. A non-ARM processor can also be connected onto the bus; the Intel PC card sits on the processor bus in exactly the same way, sharing the main memory and other resources. Also present is a 'bridge' to connect the processor bus to the expansion card bus (known as the DEBI bus). The bridge allows the ARM to talk to expansion cards and also allows expansion cards to access main memory.

Figure II shows the layout changes in the CHRP standard. The first thing to note is that CHRP specifies a PowerPC processor rather than an ARM. The PowerPC processor is IBM's own RISC processor, early implementations of which are currently used in the Apple Power Macintosh and some network servers. The PPC620 – the latest PowerPC device – is a fully 64-bit chip which can operate at up to 150MHz. It has a 32K internal cache and support for external (level 2) cache up to 128Mb.

The 620 uses all kinds of tricks to squeeze maximum performance out of the silicon; for example, it can change the ordering of program instructions to make them execute more efficiently, and can look ahead of the instruction currently being processed in order to prepare for the next operation. It also has six separate execution units (three for integer operations, one for floating point, one for branches and one for memory accesses) which enable it to complete up to four operations in a single clock cycle.

Although the clock speed of the 620 (and other members of the PowerPC family) is slightly slower than StrongARM's anticipated 220MHz, the 620 has the advantages of a built-in floating point unit and multiple execution units, which will give it even better performance – particularly in graphics and multimedia applications. The graph in Figure III gives a fairly modest rating to the PowerPC chip since it is based on the older 603 device; no reliable benchmarks were available for the 604 or 620 at the time of writing, although the latter will be well ahead of both Pentium Pro and StrongARM.

Multi-processing

In common with the Risc PC, CHRP is designed with multiple processors in mind; as the top half of Figure II shows, multiple PowerPC CPUs can be connected to the processor bus and can run in parallel in an arrangement known as symmetric multi-processing (SMP).

This is a substantial advantage over the Intel architecture, which was never really designed to work with more than one CPU. The method of talking to multiple CPUs is carefully defined in the standard and CHRP operating systems (see later) will all be able to make use of any extra processors. Unlike the Risc PC, however, you cannot plug in an alien processor and run it alongside the others; all the CPUs must be PowerPCs.

PCI expansion bus

The CHRP consortium have adopted the PCI (Peripheral Component Interconnect) expansion bus for talking to the outside world. PCI is a high-performance expansion bus which is currently used on high-end PCs and many UNIX workstations. It offers transfer speeds of up to 132Mb per second (far beyond the speed of the current Risc PC DEBI bus) and is extremely well supported by third parties.

As well as the PCI bus itself, the CHRP standard also defines standards for 'tertiary bus' adapters which can be used to allow other non-PCI cards to

work in the new machines, in much the same way that Atomwide's ISAdapter allows the use of PC ISA cards in the Risc PC. Typical applications of this would include the use of older ISA and EISA cards (as used in Intel PCs) and interfaces to other high-performance buses such as VME and Futurebus.

Existing PCI devices will of course fit the new machines, providing an immediate range of expansion cards including ISDN adapters, sound and video cards, SCSI and networking. From our point of view, it would be possible (as Figure IV shows) to put an ARM chipset and RISC OS ROMs on to a PCI card, with the ARM using the host's memory and discs but otherwise running independently.

It would also be possible, using the tertiary bus, to build a 'DEBI bridge' into which existing RISC OS expansion cards could be plugged, achieving the ultimate in backwards compatibility. The possibilities are exciting, with dual monitors (one for RISC OS and one for the PowerPC), data exchange between RISC OS and PowerPC applications and even RISC OS in a window all perfectly feasible. Acorn have confirmed that the ARM and RISC OS will live on in the new machines and a PCI card would seem to be the most pragmatic option, but we'll have to wait for the exact details.

Key features of CHRP machines

- PowerPC processor running at up to 150 MHz – typically four times faster than Risc PC 700
- PCI bus (as used on high-end PCs) with transfer speeds up to 132 Mb/second (eight times faster than Risc PC 700)
- Multiprocessor support: multiple PowerPCs can be connected in parallel, with full operating system support
- Power Management and PCMCIA support for portables
- Multiple operating systems: UNIX (Sun Solaris and IBM AIX), Microsoft NT (but not Windows 95), MacOS, Linux and Novell NetWare. All will be available by Q4 1996
- RTAS (Run-Time Abstraction Services) allow different operating systems to utilise the same hardware and expansion cards
- The CHRP specifications are freely available and any interested party can build compliant machines
- CHRP-compliant machines will initially be available from Acorn, IBM, Apple, Motorola, Canon, Pioneer, Zenith and others
- Vast range of application software from Macintosh, NT and UNIX developers
- Base configuration comes with 8Mb RAM, IDE and 16-bit sound
- RISC OS/ARM compatibility possible through plug-in cards
- Acorn's machines are expected to be available by the end of 1996

Mobile computing

In keeping with the trend in mobile computing, CHRP provides extensive support for portable devices; as well as having a low component count and low power requirements, the firmware contains a power management system similar (but more sophisticated) to that found on the classier PC notebooks. CHRP systems can monitor their own power levels and control external devices, such as screens, to reduce consumption during inactive periods.

They can also stop entirely (colourfully called 'hibernation mode') while preserving the state of the machine, so that operation can be resumed at a later time. These facilities will be controllable from software, which will allow the implementation of intelligent power-management algorithms (for example, the rescheduling of disc operations to allow the hard disc to be powered down) and a degree of user-interaction with the power management process.

Even switching off the machine can be software controlled; this allows the operating system to intervene and bring the system down in an orderly manner before removing power. This is particularly important when running multi-user operating systems such as UNIX, where an unexpected loss of power can result in a trashed hard disk and an unrecoverable filesystem. The same power management facilities can be provided on desktop machines too, which should contribute to lower running costs and (claims the consortium) a reduced environmental impact.

OS and applications

So much for the hardware; what operating systems and applications will these machines run? At the time of writing Apple's MacOS, Sun's Solaris, IBM's AIX, Novell's Netware and Microsoft's Windows NT were all in an advanced state of preparation and were slated to ship by the end of 1996, when CHRP machines will be available in volume.

The ease with which multiple operating systems can be ported to CHRP is due to the innovative Run-Time Abstraction System (RTAS), which removes much of the need to rewrite device drivers and low-level code for each operating system by providing sophisticated on-board firmware to access hardware devices.

Needless to say, applications from all these platforms will also be available, opening the door to the widest range of software Acorn users are ever likely to see. Acorn have chosen MacOS as the standard operating system to ship with their machines but it is possible that others might be offered to those outside the education market.

Other operating systems are still in a state of flux. IBM admitted as recently as April that OS/2 was unlikely to make it to CHRP due to technical problems, whereas Apple's Copland – the innovative object-oriented version of MacOS – has now been pushed back to the beginning of 1997. Windows 95 will never be available for PowerPC since it contains too much 16-bit legacy code, but 32-bit Windows applications (such as CorelXARA! and Quark XPress) will run under NT.

Would it be possible to run RISC OS on the PowerPC processor? Possibly, but it's unlikely to happen. Part of the motivation for Acorn's moving to CHRP is greater standardisation, and running a proprietary operating system would erode some of that advantage. RISC OS is strongly tied to the ARM architecture and getting it to run on the PowerPC would be non-trivial and costly.

Furthermore, all RISC OS applications would need converting (and in some cases rewriting) to work on the new processor; the effort required to do this probably wouldn't justify the rewards, given that it would be relatively cheap to simply fit an ARM processor into the machine (as described above) and use that instead.

Prices

How much will all this technology cost? Looking at the specifications demanded of even the low-end CHRP machines it's clear that it won't come cheap, and anyone hoping for the PowerPC equivalent of the A3010 is likely to be disappointed. The CHRP standard specifies that standalone machines must contain at least one CPU, 8Mb of RAM, an IDE hard disk, 16-bit sound and a fast serial port.

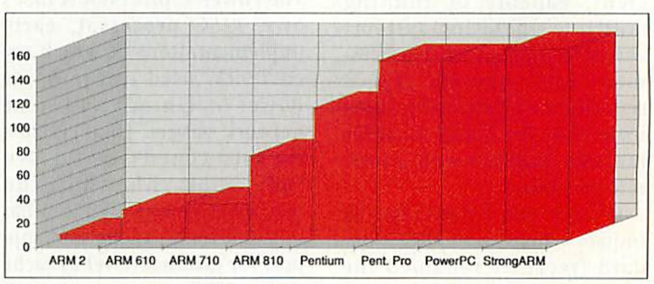


Figure III

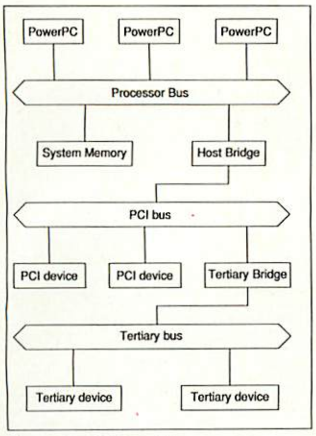


Figure II: CHRP architecture

A very rough estimate, based on projected hardware prices, might be around £1,200 for a machine of this configuration. A high-end machine with multiple CPUs, graphic acceleration, CD-ROM, networking and 16Mb of RAM would be useful for running the more powerful operating systems such as Solaris and NT and might retail for around £500 more. The CHRP consortium is hoping that mass production and competition will drive prices downwards and this could potentially make CHRP machines cheaper than Pentium and Pentium Pro PCs, due to the PowerPC processor being much cheaper than Intel equivalents, and the reduced need for plug-in cards to provide basic facilities such as sound and video.

Keeping customers

As with PCs, CHRP motherboards will be produced in bulk by a handful of manufacturers and then sold on to companies, such as Acorn, to be turned into fully-fledged systems. The list of other companies developing CHRP computers includes notable names such as Apple, IBM, Motorola and Canon, as well as (interestingly) a handful of consumer electronics companies such as Zenith, Goldstar and Pioneer.

This last sentence raises an important point for educational and home users alike: if Acorn's machines are now going to be exactly the same as Apple's and Motorola's, why bother buying an Acorn machine at all? What incentive is there to stick with Acorn as a company? The answer – for educational users at least – lies in Acorn's recent split into a sales and product-oriented arm (Xemplar Education, in conjunction with Apple) and a technical consultancy arm (Acorn RISC Technologies).

Xemplar will concentrate on value-added services to schools and colleges and will (it is intended) offer a wealth of specialist experience and support on its products which won't be available from other manufacturers. In other words, schools will continue to buy Acorn but for the backup and support, rather than for the technology alone.

For professional and home users who want to move to CHRP the reason is less clear; Acorn will almost certainly offer some kind of ARM/RISC OS compatibility package as an initial reason to stay, but beyond that it has yet to show its hand in these markets. They will need to provide incentives to avoid losing non-education customers to the likes of Motorola and IBM.

Acorn is keen to reassure its customers that, whatever happens in the future, there is plenty of life left in the existing ARM technology for a good while yet – although it is unlikely to be extensively developed beyond the Risc PC StrongARM card and the forthcoming RISC OS 3.7. There are probably around 500,000 RISC OS computers in regular use around the world, and they certainly aren't going to become obsolete overnight.

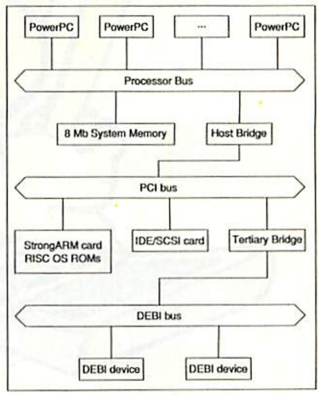


Figure IV: CHRP and ARM

The market for third-party hardware and software will still be thriving for a long time, although the emphasis will probably be on enhancements to existing products rather than major new projects. The arrival of the new machines will probably make the current Risc PC range look less attractive unless Acorn can massacre the price before the end of the year, but the A7000 (with a similarly massacred price) may well find a niche as a low-cost, established and reliable system for those who don't require the power of the latest machines.

The success of Oracle's network computer will be instrumental in determining the future market of the A7000, and if the former takes off, the latter could prove to be highly lucrative.

The networking and multimedia extensions to RISC OS developed for the Oracle project will almost certainly find their way into an upgrade for existing machines. Both the A7000 and Risc PC will continue to be available for as long as there is demand, and it's unlikely that either will disappear before late 1997.

It will be interesting to see how CHRP is received in Acorn's key markets. For educational establishments in the primary and secondary sector the machines may provide an excess of power which will be difficult to justify financially. Most schools don't require the capabilities of a current RiscPC, never mind a multiprocessor machine with eight times the speed.

The best bet for those schools might be to stock up on new or second-user A3020s and A7000s, which give very good value for money and which will have fallen in price by the end of the year.

If anything forces a move to the new machines it will be the arrival of educational and multimedia software from the Macintosh market which might never be seen running under RISC OS.

For professional and home users, the outlook is much more clear-cut than before; CHRP will bring increased standardisation, price competition and a much-needed power boost over both the current Risc PC range and the forthcoming Intel technologies such as Pentium Pro.

Professional applications from the UNIX, MacOS and Windows NT markets will be available to Acorn users for the first time ever – although they won't be cheap – and PCI cards, such as graphic accelerators and digitisers, will also be usable in the new machines.

Big changes ahead

Whether or not Acorn's new technology succeeds, it is clear that the Acorn market is heading for a change comparable to that of the introduction of the Archimedes nine years ago; and just as the transition from 8-bit 6502 to 32-bit ARM was eased by software such as the 6502 emulator and BBC disc reader, we can expect similar dual-platform support during the move to 64-bit PowerPC.

Acorn's machines are widely expected to be available by the end of 1996, so it will be one of the first to produce a CHRP-compliant machine.

And while the author is neither a speed freak nor a MacOS aficionado, the prospect of Solaris applications running on an affordable multiprocessor computer, with RISC OS and StrongARM just a mouse click away, might prove too much to resist. AU

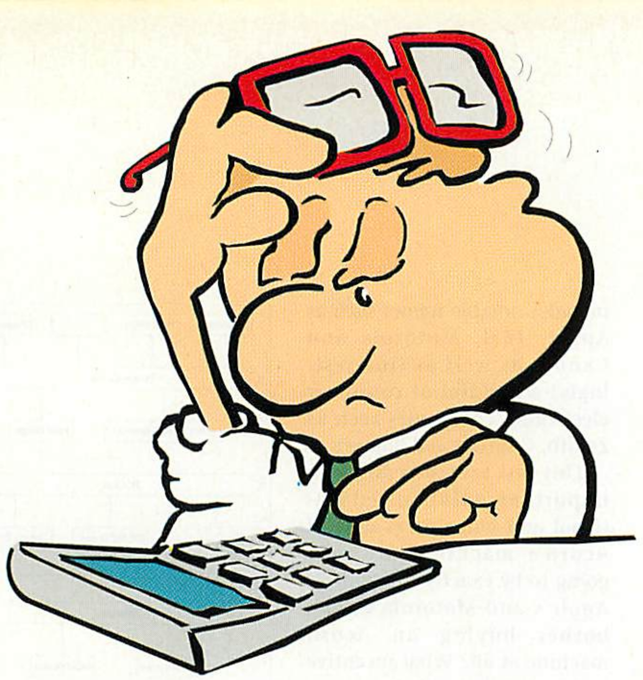
Further details

For more information on CHRP, try looking at IBM's web site on http://www.chips.ibm.com/products/ppc/chrp/chrp1.html.

This is quite a slow site since it's so heavily used. The complete CHRP specification stretches to hundreds of pages and isn't very readable, but there are also various summaries and question-and-answer documents on the site which give an overview of what you can expect.

For more information on the latest PowerPC processors, try : http://fnctsrv0.chips.ibm.com:80/products/ppc/DataSheets/620/620risc.html.

This contains a useful summary of the PPC620 architecture, and information on other members of the PowerPC family.



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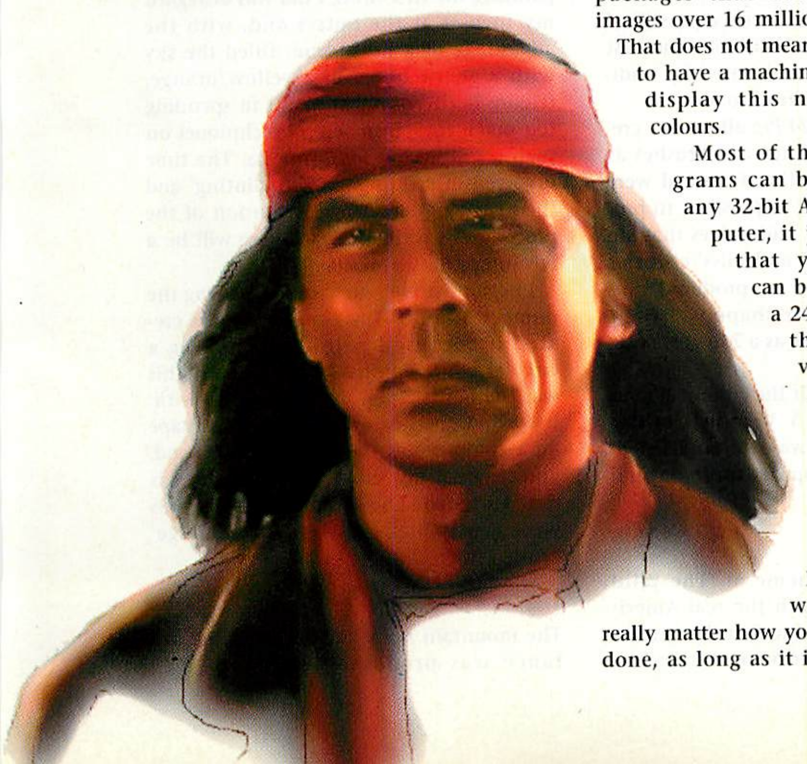
HOW THE WEST WAS DRAWN

In the first instalment of a new series, Walter Briggs takes a hands-on look at how to get the best out of 24-bit painting packages. This month he looks at Studio 24 Pro

The term 'Wild West' conjures up wonderful scenes of magical adventure and excitement. Of course the real West, was not quite such a pleasant place in the days of characters such as the James brothers and Billy the Kid. But I hope to reproduce some of the drama and much of the beauty that survives in the majestic scenery of the West.

There are basically two reasons why anyone would produce artwork: for someone else – possibly for commercial reasons – and for personal satisfaction. I hope to encourage as many as possible to try to produce work that will give a great measure of the latter.

We will be working together using different packages, hopefully getting similar results, each creating pleasing illustrations.



Everyone can be an artist! That statement will be contradicted by many, but how many times do we hear the cliché: 'Art, like beauty, is in the eye of the beholder'? But it's true. We often see on television someone getting a grant for a piece of work, and we think 'what is that?'. Well hopefully your work will at least give you pleasure and you will feel justified in calling your masterpiece 'art'.

In this series of articles I'll try and give as many suggestions and tips in producing images with 24-bit painting packages. We'll be using most of the available software. By that I mean art packages that can produce images over 16 million colours. That does not mean you have to have a machine that can display this number of colours.

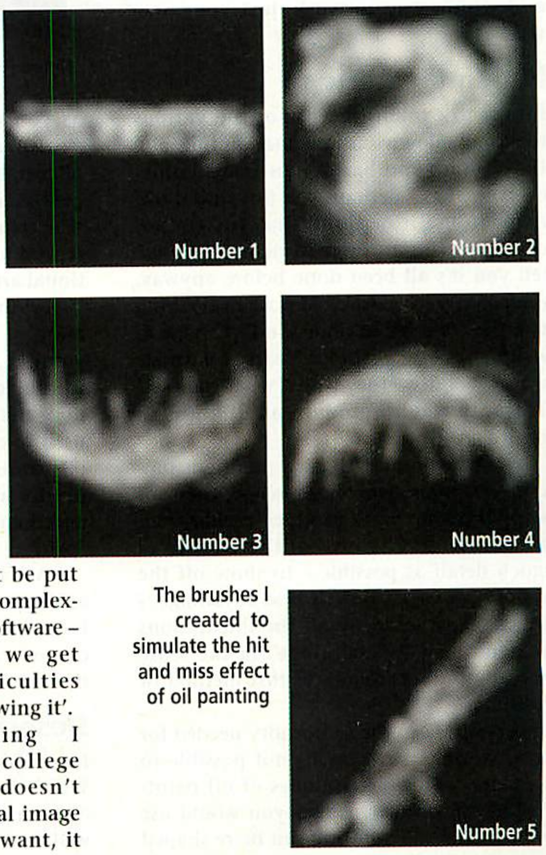
Most of the art programs can be used on any 32-bit Acorn computer, it just means that your work can be output as a 24-bit image, though not viewed as such. Don't be put off by the complexity of the software – wherever we get into difficulties we'll just 'wing it'.

One thing I learned at college was that it doesn't really matter how you get the final image done, as long as it is what you want, it does the job for which it was produced, and you enjoy doing it, that's vital!

Rehash

I am not just going to cover what the software can do – I'll be concentrating on what can be done, and how. The manufacturer can explain what his program can do – we will use it and see for ourselves.

This series will not be a review of the different programs, but a comparison of



The brushes I created to simulate the hit and miss effect of oil painting



Figure I

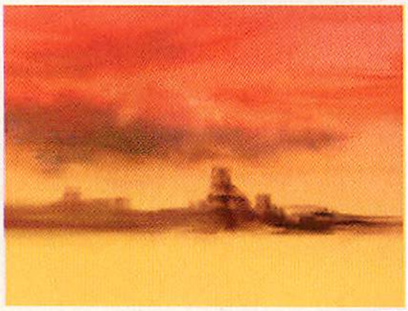


Figure II



Figure III



Figure IV

how various techniques and methods are employed to 'create'. I'll try to explain the various ways illustrations are built up, and release as many tips as I think I can afford, without giving away too many secrets!

I will try to create as many techniques on as many packages as possible, and explain why it works better on one than it does on another. Of course the first cannot be covered in a comparative way as there are no others to compare it with. It will to some degree have to stand on its own merits alone, although as the first is *Studio 24 Pro* this shouldn't cause any problems as I am very familiar with it.

The articles will cover one program at a time and this month, as I said, I'll start with *Studio 24 Pro*. Though, like any artist I have my preferences, there is no definitive way to produce art, and I will only cover the way I work. There is no right and wrong way to work, just your own way!

Pure imagination

I'll try to explain the use of the various tools and allow your imagination full rein. Don't think you haven't an imagination, everyone has – perhaps you just find it difficult to use it or think that you cannot come up with an original picture. Let me tell you it's all been done before anyway, even if it's in nature. Almost everything you see is a copy of some kind, perhaps in a different composition. Nearly all artists work from life – they 'copy' what they see! The only way to produce anything is to have a go.

What I will do with each picture is produce a similar type of landscape, then for more intricate work produce a character, animal or other symbol of the West in as much detail as possible – to show off the various packages to their best advantage. I will attempt to create all the illustrations as traditional 'oil paintings', in the sense of using the techniques of this method of painting.

This will keep the uniformity needed for comparison. Of course it's not possible to reproduce all the techniques of oil painting, as the various brushes you would use with traditional painting can be re-shaped as you work, simply by increasing the pressure and turning the brush hence altering the brush shape. But anyway we'll give it a good shot! Wherever possible I will create brushes that will give the best reproduction of the 'tools' used by traditional artists. (See Brushes 1 to 5)

Fortunately *Studio 24 Pro* allows the creation of as many of your own brushes as you like. The brushes that I created were to enable me, as much as possible, to produce the hard brushes and knives that are used to create the 'hit and miss' effect of oil paints. The brushes are produced simply by airbrushing the shape you want and then saving the file as a 256 grey scale Sprite.

I will also work with the colour squares as displayed in the H. S. V. format, as this is the most intuitive way for an artist to choose colour – it appears more natural this way.

Desert sun

I decided that the theme of 'The Wild West' should begin with the real Americans – the Indians. So the first illustration will be of the desert tribe of the Apache and will include a portrait of an Indian.

Since I was trying to recreate an oil painting the first thing I did was disregard my format at the outset and, with the advantage of a fill option, filled the sky with a gentle blend of a yellow/orange. (Figure I) There was no point in spending too much time in using oil techniques on such a simple but long process. The time involved in creating an 'oil painting' and then 'writing' about the evolution of the procedure is forbidding so there will be a few jumps in the routine.

I began working on the clouds using the number 2 brush. The reason this was created is because I paint clouds using a circular motion with a 'fan brush' and this was the best shape I could come up with. It was no good using the usual fan shape on a computer as the brush cannot bend, and it could not create the gentle swirls that I needed. The bottom of the clouds were gently blended with the 'smudge' brush.

Rock faces

The mountain range (Figure II) in the distance was produced very simply by

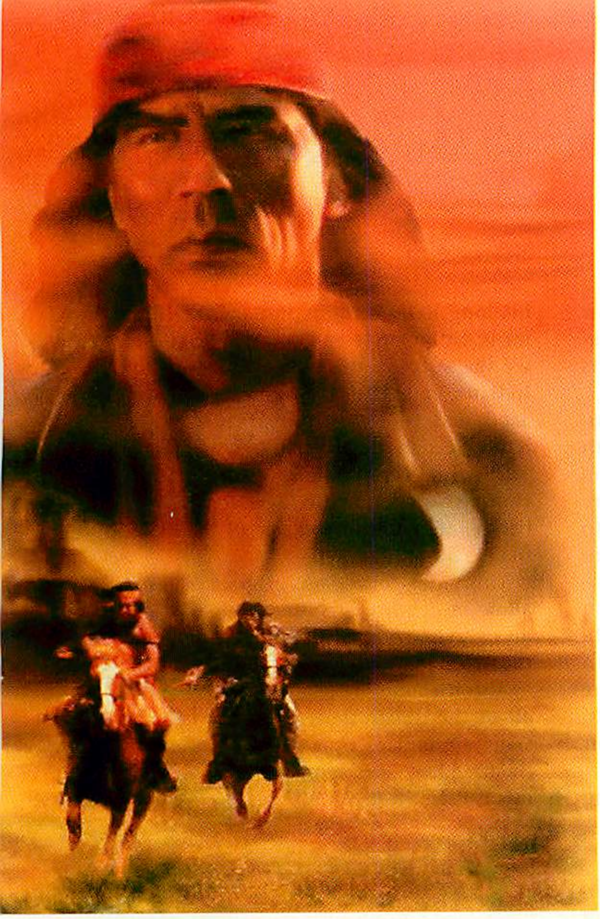




Figure V



Figure VI



Figure VII

dragging the number 1 brush, which has a variable amount of white and grey – to produce a random effect of 'hit and miss' of colour. It works similar to a large flat bristle brush and was used in a 'dabbing' motion to produce the shadows. The opacity was set low, at about 15 per cent, and the colour built up gradually, this is important if you are to retain control. The bottom of the mountains was dragged out with the smudge brush to blend them into the desert floor and give the illusion of distance.

The large rocks in the foreground (Figure III) were constructed in exactly the same way. The flat brush was used to add the dark brown, it supplied a dark colour in a random way – down the canvas as it was dragged. Highlights were added in the same way, using a pale cream which was achieved with a 'palette knife'

The 'brush' and 'grasses' on the desert floor were painted using the number 4 brush, which simulates a 'fan brush' being pressed and pushed up to give a saucer shape effect. I of course had to make a special shaped brush! It was not worth putting in a lot of detail as time would not allow it, and the small size at which the illustrations would be reproduced made it insignificant.

Apaches

The figures in the scene in Figure IV were added using the 'clone' brush, a very useful tool which I will describe in a little more detail later. The figures themselves were created with my favourite tool – the 'airbrush'. Though once again, detail was of little purpose given the size of the fleeing horsemen. Figures V to VIII give some of the steps in the galloping action. Figure VIII is of course a complete Indian, just VI added to give a little more variety.

In the time I had available these horsemen could not be painted straight on to the canvas, as they should have been. I produced them on their own canvas and then 'cloned' them across. This allows a great deal of control over how and where they will appear. The 'clone' brush allows you to recreate the figures (or anything else) onto a new picture by copying the figures with a brush similar to an airbrush.

You virtually spray the images onto the new canvas, while monitoring your progress, by watching the square on the original work. The size of the brush is reflected in the size of the square, and the opacity can be set to suit. I always keep it low, about 19 per cent, allowing greater control. If you overdo the process, *Studio 24 Pro* has an 'undo' brush, which allows a gradual removal of the cloned image. The white background was not copied, as this was protected with a 'mask'.

Geronimo

The figure of Geronimo was almost entirely created with the airbrush and smudge tool. The first thing to do was to produce an outline. This was done with the !Draw options available in *Studio 24 Pro*. The lines were then turned into a mask. (Figure IX) This is simply done by pasting the images down onto a 'mask' channel – called an 'Alpha Channel'.

The face was developed – starting with the eyes and moving down as each part was completed. (Figure X) The airbrush



Figure VIII

tool like the smudge brush in *Studio 24 Pro* are the best I've come across, but then I don't have all the art packages yet. The smoothing effect of the smudge brush is exactly like 'oil paint' and a finger – the real difficulty is getting the opacity right. With this tool the opacity controls the amount of 'paint' it can pull. If it is set very low it is more like a blending tool.

Although there is a 'water colour' tool, I


Figure IX


Figure X

never used it, as the task did not allow time to use every feature. What I was looking for was the ease with which the affects could be achieved.

Usually, with enough time, most illustrations can be generated. Working with the airbrush, like the real tool, produces 'over spray', so a mask is needed (Figure XI). These masks were used continually to protect the surrounding areas from unwanted 'paint'.

The portrait developed as can be seen in the next few pictures (Figures XII and XIII). Like any oil painting it's possible to overdo the work and lose some of the detail, this happened with his eyebrows, which deteriorated into smudges of colour when they had been individual hairs.

Nevertheless this was fine for creating his long hair. If the reproduction allows for it, look closely and you will be able to see the affect of the smudge brush in the Indian's hair. The background was generated just to set off the figure when reproduced in the magazine (Figure XIV).

The final composition was produced by cloning Geronimo onto the desert scene as before, allowing the outside of the image to fade into the sunset.

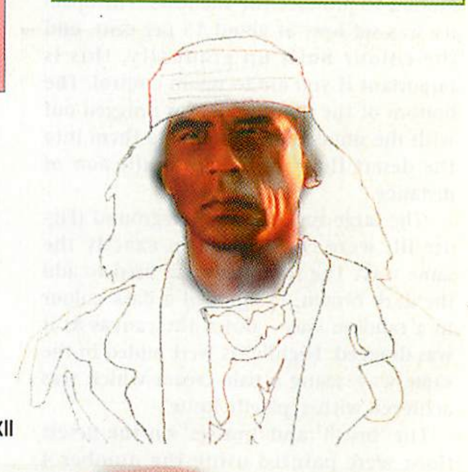
This series, for reasons of space, will not allow in depth descriptions, but will give an overview of the software available on the Acorn market.

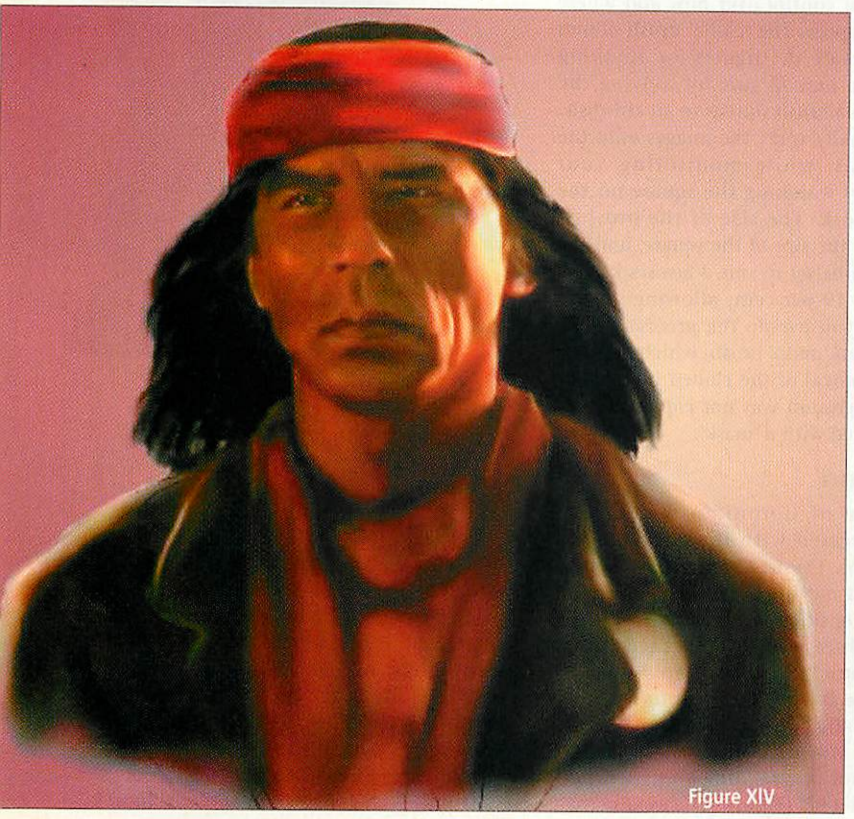
Also it should be kept in mind that not all of the illustrations will have had the same amount of time spent working on them, so be guided more by the comments than the pictures. AU

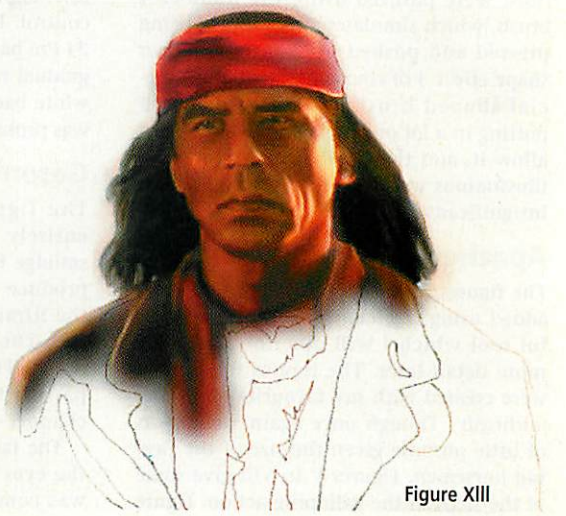

Figure XI

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Figure XII


Figure XIV


Figure XIII

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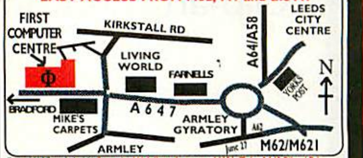
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The graphical

Alex Singleton scans shovel-fuls of CD art

Is clip-art actually useful? There is one school of thought with the opinion that it is simply an excuse for kindergarten children to compose altogether pointless garbage. From the other school, I've noticed one reviewer in another magazine claiming that some CD shovelled full of scanned photographs is a worthwhile addition to his clip-art collection! I hold the conventional view: clip-art *can* be useful if sensibly selected and used in appropriate places.

PublishArt 2

'Our clip-art is different to most other company's because it's being sold by the wagon-load,' declared the young proprietor of SmartDTP, James Parry. And it is easy to see why. Rather than consisting of pictures of actual objects, it is designed to be a multi-purpose resource for transforming boring documents into eye-catching pages.



PublishArt consists of one of those large flashy card boxes that lacks robustness, eight discs which uncompress to 14Mb (which is often incorrectly rounded-down to 13Mb) and a guide to producing ostentatious documents using *PublishArt*.

One of the most useful parts of *PublishArt* is the collection of highlights. This consists of captivating arrows, colourful explosions (like those used during brawls in the TV series of Batman), flashy underlines and the like. Yet more useful are the designs: these are illustrations



which incorporate words – such as 'Bright Idea,' 'Special offer,' 'RSVP' and 'Free.'

There is a huge collection of (non-*Impression*) borders and corners, which are definitely superior to any others I've come across. Like the vast majority of *PublishArt*, they are in colour and print well on mono printers.

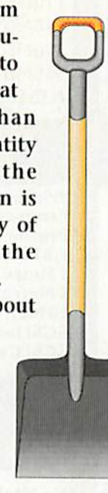
Dropped capitals are out in force, ranging from the ugly to pure modern perfection. Additionally, *PublishArt* contains *Impression* borders (regular and irregular), A4-proportioned page backdrops and special bullet characters.

There is very little to criticise and at £35 (no VAT), it has to be unreservedly recommended. The product has now been grabbed by the 'powers that be' here at IDG and is being offered at £10 when an *Acorn User* subscription is taken out.

TopicArt

Over the years, Desktop Projects has been quietly compiling discs of reasonable to high quality artwork, each containing approximately fifty pictures on a specific topic. The discs cost £8 + VAT each, accompanied with a thumbnail sheet. Recently, the company converted their disc collection onto CD – adding many additional files – and is selling it at an attractive £32 + VAT (£37.60 inclusive).

The files are in three formats – *Draw*, *Artworks* and EPS (Encapsulated Postscript) – which might seem a little like space-filling, but I'm inclined to think that (particularly at this price) it is better to produce something smaller that is generally good, rather than larger with only a small quantity worth having. A copy of the superb *Thumbnail* application is included in the root directory of the CD to make finding the *Artworks* and *Draw* files quick.



The dinosaurs section is about on par with *Bitfolio's* slightly smaller offering, although *TopicArt's* tend to be less intricate and more impressionistic. The 576 signs – covering laboratory, fire, safety and so on – are admirably drawn and are superior to *Bitfolio's* portion, simply due to quantity. There is also an excellent selection of maps, a reasonable sporting section, a distinguished batch of tools for a variety of professions and some fully drawn Christmas scenes.

All in all, the CD is worth every penny.

Bitfolio v7 CD

Containing approximately 10,000 professionally created *Draw* files, the *Bitfolio v7 CD* is something to get really excited about. Priced at £80 + VAT (£94 inclusive) from LOOKSystems it covers a massive variety of aspects *and* in depth to boot. The coverage ranges from *PublishArt*-style designs to a huge collection of cartoons.

There is an inordinately large offering of corners and one-sided borders, although *PublishArt's* smaller collection is superior in terms of usefulness. Worth special mention are the collection of presentation points and shapes (similar to *PublishArt's* designs and highlights) which are exemplary, although these are, again, outshined by *PublishArt's* selection.



British sport is covered better by this CD than any of the other products reviewed; there is an impressionistic cartoon section (85 pictures), a more realistic sport section (425 pictures), and a group of silhouettes and page icons (104 pictures). Animals are out in force both in impressionistic form (100 pictures) as well as in cartoon format (117).

The CD contains an unrivalled collection of Christmas art, all bright, colourful and modern. Despite the lack of Biblical Christmas pictures, there is also a Christian section with over 200 images.

There's an exemplary collection of world flags. The flags, generally, are in two versions: an ordinary flat picture as well as a version fluttering in the wind. Road and hazard signs are featured (30 and 98 respectively), although the latter is better represented by Desktop Projects' *TopicArt*.

There are also 200 office and work cartoons – from women with axes smashing their PCs to people in board meetings. The uses for these are endless.

The package consists of an attractive card box (albeit a flimsy one), containing a CD-ROM and a categorically unsurpassed book with thumbnails of all the pictures in full colour (although no on-disc thumbnail viewer is provided). This has immediately become my first choice for traditional clip-art.



ArtWorks Clip-art CDs

For Computer Concepts to market its two CDs under the designation 'clip-art' does no justice to the usefulness of its products. While they do contain

resource

some illustrations which could be valuable for dropping into a DTP package, most are not – all are in *ArtWorks* format. Unlike the other clip-art assortments reviewed here, it was not produced by artists looking at one or more distinct aspects (such as sport). Instead, the art is made up of entries for competitions held by the company and, as such, are often attempting to demonstrate the power of *ArtWorks*.

Thus, the pictures should be fruitful for amateur users of *ArtWorks* to reverse-engineer and find out how they were created. Both CDs also contain a selection of high-resolution photographs in Sprite format (and reproduced as TIFF files for IBM machines, which I believe are popular in America) and a demo of *AudioWorks*. Each CD costs £19 + VAT.

StarT Impression borders

StarT Design's £16 (no VAT) *400 Impression Border Pack* is a jewel. The four-disc 400 border collection is categorised into *Chinese Lattice*, *Old English* and *Miscellaneous*. Finding the exact file needed is easy as an illustrated catalogue is provided on each disc as an *Impression* file. Highly recommended.

Also available is a *1000 Impression Border Pack* for £27. The borders are provided on 10 discs and are categorised into *Old Fashioned* (two discs), *Geometric* (two discs), *Ethnic* (one disc), *Chinese Lattice* (one disc), *Mixed* (two discs), and *Stained Glass Windows* (two discs).

GraphPack

GraphPack, costing £22.95 (no VAT) from Dalmation Publications, is advertised as a 'design and layout library'. Distributed on four double density or two high density discs, it is essentially a collection of *Draw* files showing off modern design. Similar to many of the design books that can be found (for free) in libraries, but with the dubious advantage of being editable in a vector graphics package such as *Draw*.

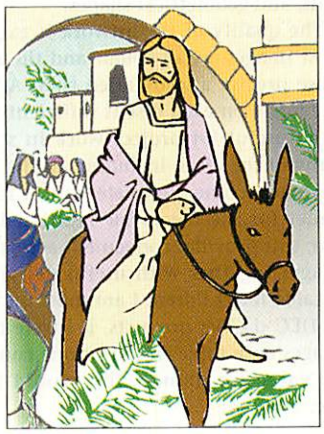


Christian clip-art

Perhaps logically, there is a not an insubstantial number of Christian ministers and vicars using Acorns for church magazines. DEC_dATA's *Parish Magazine* collection is a very general pack, but I find it far too traditional and not evangelical enough for my liking. For example, there are pictures of fonts, orbs, mitres and candles in preference to, say, coffee mornings, which most people would consider to be far more important.

A far superior source is Christian Computer Art, which produces a catalogue of 45 discs, converted to the Acorn world by Anglican vicar Ian Gooding. Each disc contains about 35 to 50 monochrome images in sprite format, about 10 to 30 of which are converted into *Draw* and about 10 as full-colour *ArtWorks* files.

This may all sound a little off-putting, but they really are very good, despite obvious duplication of material. I would prefer to see more of the sprites converted into *ArtWorks* format and as Ian uses the files himself, they get converted. The usefulness, however, of these discs are simply down to the fact that they are all topic based. Furthermore, they are only £7.90 each and there is no VAT to add. A brochure is freely available.



Managing clipart

For this review, I needed a method of viewing each of the files quickly as double-clicking on each file in a directory display takes forever. I tried every program I could find, in particular Fabis Computing's EasyClip, Ian Palmer's shareware Thumbnail and Hugh Eagle's public domain PickAPic.

These are all programs to make finding the exact image required easy, by operating like an ordinary filing system but with each file icon as a thumbnail of the image.

EasyClip, although released at Acorn World last October, can only be considered to be in development as it has too many fundamental flaws (such as the inability to have more than one file with the same name and the lack of sub-categories), which will be rectified in version two.

Despite being the fastest of the crop, and allowing catalogues to be exported as Draw files for printing, PickAPic lacks ease of use.

Thumbnail comes out as the leader. What's more, it simply requires a cheque for £5 to be sent to Ian Palmer, 40 Birch Crescent, Aylesford, Kent ME20 7QE. Or, if you would like to try it out first, there was a fully-working shareware demo on the first Acorn User CD.

Conclusion

If you are after something to spruce up posters and the like, accept nothing but *PublishArt*. For an omni-useful CD, the *Bitfolio CD* is unsurpassed, although the less comprehensive *TopicArt* has a more manageable price tag. AU

Contact details

Christian Computer Art
Address: 18 Larksfield, Covingham, Swindon SN3 5AD.
Tel: (01793) 520139

Computer Concepts
Address: Gaddesden Place, Hemel Hempstead, Herts HP2 6EX
Tel: (01442) 351000

Dalmation Publications
Address: 30 Henley Grove, Henleaze, Bristol BS9 4EG

DEC_dATA
Address: Dept AUR, PO Box 97, Exeter EX4 4YA
Tel: (01392) 221702

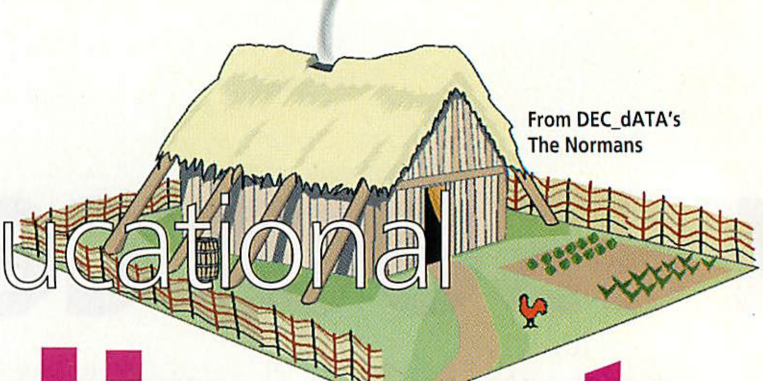
Desktop Projects
Address: 2A Heapriding Business Pk, Fort St, Cheshire SK3 0BT
Tel: 0161- 474 0778

LOOK Systems
Address: The Gables' Yard, Pulham Market, Norfolk IP21 4SY.
Tel: (01379) 608585

Matt Black
Address: 6 Henry Court, Henry Street, Peterborough PE1 2QG
Tel: (01733) 315439

SmartDTP
Address: Park Road, Duffield, Belper, Derbyshire DE56 4GR
Tel: (01332) 842803

StarT Designs
Address: 16 Stapenhill Road, Burton-on-Trent, Staffs DE15 9AF
Tel: (01283) 537209



From DEC_dATA's The Normans

Educational clip-art

Philip Murray-Pearce scrutinises the educational marketplace for suitable and useful clip-art

Over my 15 years as a teacher I have encountered large amounts of clip-art aimed at schools, most produced commercially but some also from PD suppliers. My own criteria for assessing clip-art are as follows.

Firstly, is it likely to be used productively in a school environment? Secondly, is it historically, scientifically, or otherwise sufficiently accurate for its intended age-range? Thirdly, can it easily be adapted or modified by pupils or teachers for their specific purposes.

Anglia Television

Much of Anglia TV's material is aimed at History Key Stages 2 and 3. Costs are £14.10 inc. VAT per 800K disc of 15-30 images. Topics covered include *Egyptians, Greeks, Romans, Saxons and Vikings*, and *Aztecs*, British history is also well represented on six discs covering periods from the Middle Ages to the present; a variety of aspects of life is covered.

There are also two discs of faces of 20th century personalities ranging from Hitler to Mandela or Pankhurst to Madonna, one of British clothing over the past 1,000 years, and one of ships from the past two centuries.

Anglia also produces a smaller range of discs – attractive topics include *Prehistoric Animals, Farm Animals, Natural History of Britain, Human Biology*, and *Music and Instruments*; of more restricted use are collections of images of fossils and of modern actors in Shakespearean roles.

Most of Anglia's images are monochrome (*Human Biology* is an exception), which may reduce their impact in multimedia presentations; most print well, though some have been mounted on grey panel backgrounds which are best removed before printing. The style is sometimes impressionistic, though detail and accuracy are quite acceptable for the intended age-range. The range of images on each disc should suffice for most purposes. One item I would like to have seen included is a sheet of thumbnail pictures with each disc.

DEC_dATA

DEC_dATA covers most of the same areas as Anglia at Key Stages 2 and 3. Prices range from £6.99 inc VAT for a single 800K disc to £23.50 for a set of four; a typical disc contains around 20-25 images. History discs cover *Greeks and Romans, Saxons and Vikings, Normans, Tudors, Stuarts*, the *19th Century*, and *World War I*, with topic discs on ships of the past two centuries, steam trains, military aircraft, the stories of flight and rocketry, and famous buildings of the world.

Scientific and other areas covered include *Extinct Animals, World Animals, Orchestral Instruments*, and sets of country maps; there is also a two disc starter set of 200 images for primary schools covering, amongst other things, money, time, animals, and geometrical shapes.

The quality of the artwork is excellent; most images are in colour and the style is more precise and detailed than Anglia's. The range on each disc is sufficiently wide to be useful for project work in schools. Many of the discs, including all the historical ones, come complete with a file and reader for the *ClearView* multimedia system; this provides convenient access to the images together with useful descriptions suitable for children. I am most impressed by DEC_dATA's products, if I were buying images on a topic from just one company, for value for money, this would be the one.

Matt Black

Matt Black has three major products, *Animals & Nature* (150 images), *Sports & Games* (180 images), and the *Education Image Pack* (2,000 images) covering a variety of topics, all well-converted from Mac/IBM originals; the last costs £65 and the others £35 (there is no VAT to pay).

Each comes with a booklet showing all the images clearly as well as a copy of the *PickAPic* clip-art management program. On the discs themselves, the images are sensibly arranged in directories according to topic. The majority of images are in full colour, with good attention to accuracy and detail.

For me, the most useful pack is *Animals & Nature*, which contains an excellent range of beautifully drawn animals, including some prehistoric, together with some plants and related scenes. I have reservations about the others however – both betray a distinctly American origin, which has led to some omissions from a British perspective. *Sports & Games*, for example, includes baseball but not cricket or rugby; the *Education Image Pack* has pictures of Washington in preference to, say, Wellington and includes over 50 American, rather than European, road signs – not to mention 16 $ symbols!

Others

Sherston Software produces three packs of clip-art of use to schools. These are *Christmas Allsorts, Food for Thought*, and *Split an Image*. The first two are self-explanatory, the last is a set of cartoon heads of contemporary famous people in politics and entertainment together with a range of bodies etc. to allow a bit of creative satire.

StarT Designs have an original range of discs mainly concerned with designs from different cultures but also including some pleasing images. Quality is high but applicability to schools may be limited, particularly as the images are in *Artworks* (a reader is provided) rather than *Draw* format.

Finally, 4Mation has created the *smArt* linked graphics system, whereby supplied images can be easily modified on screen through menus and the results saved as conventional *Draw* files. Sets of images available include *Heraldry, Dinosaurs, Fashion*, and *Homes*. All provide a straightforward and motivating means for children to work with graphics rather than ready-made material of the type reviewed earlier.

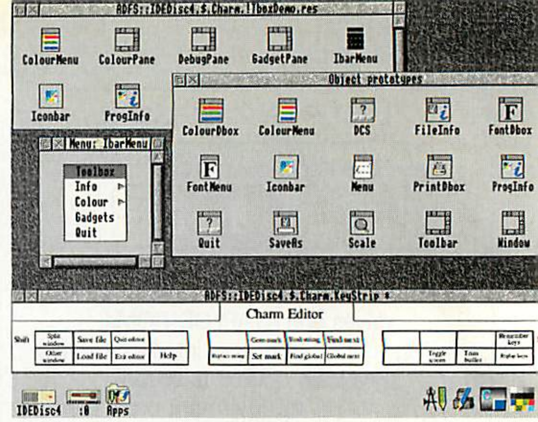
Conclusion

For me, DEC_dATA and Anglia Television produce the best ranges of clip-art for junior and middle schools; for historical topics, there are really no alternatives whatsoever. AU

Product details

4Mation Tel: (01271) 22974	Matt Black Tel: (01733) 315439
Anglia Television Tel: (01286) 755811	Sherston Software Tel: (01666) 840433
DEC_dATA Tel: (01392) 221702	StarT Designs Tel: (01283) 537209

REVIEW



Making use of the Toolbox

Charm or trinket?

Stephen Wade investigates the Charm language and compiler

If there's one thing that seems constant in the Acorn market, it's the disproportionately large number of programmers it houses — good ones at that. Those days spent squeezing every last byte and clock cycle out of the humble BBC Micro were not wasted as present Acorn software is among the most efficiently coded on the market, among other things measuring kilobytes rather than industry-standard megabytes. However, creating today's programming masterpieces requires good tools and powerful languages.

Charm is a block-structured, compiled, high-level language supplied on two 800K floppies with a 56-page, A5-size manual. Located on disc one are the primary Charm tools, such as the program editor, compiler, assembler and linker, together with a desktop front-end. Also included is a short tutorial file and a Drawfile which supplies function key and numeric keypad legends for the program editor.

Disc two features the SparkPlug extraction tool alongside three archives which hold some 1,150K of software. Two of these archives, ResEdit and Toolbox, contain the application and system modules which respectively form the ResEdit application interface creation tool. Although this toolbox is normally associated with Acorn's own C++ package (see Steve Mumford's review in the August 1995 issue of *Acorn User*), it is also supported by Charm.

Eleven demonstration programs written in Charm occupy the third and final archive. These are supplied with source code and include several single-tasking programs, such as a prime number sieve, field strength calculation and string matching alongside a desktop Chinese checkers game, multi-tasking scientific calculator and a demonstration created with ResEdit to show how it's done.

The language

Block structures are a popular means of language design because they both map well on to machine code and present a clear, logical structure to the programmer. Like BBC Basic V, Charm code consists of a number of blocks delimited by an instruction pair such as *proc...end_proc*, *for...end_for*, *if...end_if* or *while...end_while*. All the usual conditionals, loops and expressions you would expect in a high level language are supported.

Four basic data types are provided — boolean, integer, real and character — each of which can be formed into arbitrary dimensioned arrays. A one dimensional array of characters, for instance, provides a nice abstraction for a string. Composite types can be constructed using the *record* facility, while enumerated types are available in a limited context through the *list* mechanism.

Pointers, which can initially prove confusing in C due to seemingly random use of asterisks and ampersands, are more easily understood in Charm because of the more obvious *ref* and *val* keywords denoting reference and value respectively. Separate operators are also supplied for comparing pointers as opposed to the values to which they point.

In Charm, arrays can only be passed by reference thus maximising efficiency. This means explicit copies must be made if localised changes are not to be reflected globally. Procedure input/output parameters can include references to other procedures which are only resolved at runtime.

The memory management and input/output facilities are generally more advanced than those found in Basic, but not as powerful as in C. While input and output operations use streams like C and C++, a task such as printing a string followed by a number and new line requires three different *write* statements compared to a single *printf* in C.

Definition files and the *include* directive enable Charm to support modular programming. Indeed, several definition files are included in the package which provide access to input/output, real numbers, the desktop and its related events, strings, toolbox and general operating system facilities.

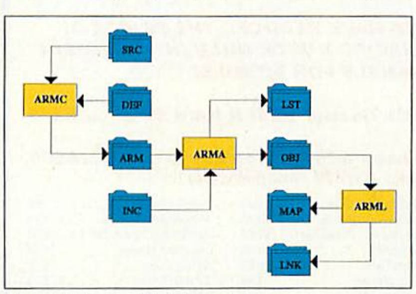


Figure I: Charm file hierarchy

Documentation

The quality of the documentation and range of information at your fingertips is of great importance when learning a new language. In the case of Charm the documentation is, sadly, very disappointing. The manual is slim, lacking both detail and a comprehensive language reference section. It also suffers from several small, irritating errors. For instance, some of the example assignment statements lack the necessary colons, while it repeatedly states real numbers take the form 3.1E-3. Fine, except the compiler isn't satisfied with anything other than lower case e.

Two saving graces are appendices A and B. The first contains the production rules underpinning the syntax of the language which can aid understanding of the language structure and help in discovering why a given piece of code will not compile. In the second appendix, the policy governing the use of processor registers by Charm is explained. This is of interest when considering hand coding certain routines in assembler to achieve optimal performance.

The disc-based tutorial broadly suffers from the same problems as the manual, although it does have several useful, albeit short, examples. It must be said that there is no substitute for hands-on, active learning when it comes to programming. Further Charm programming information can be gleaned by examining the definition files and example programs, though they are not well commented.

The compiler

Charm is serviced by a multi-tasking front end and runs on any RISC OS machine with 2Mb or more of RAM. The default configuration aims to minimise disc swapping on floppy-based systems and requires a 300K RAM disk. If your system incorporates a hard drive, the *!Charm.Install* configuration file can be edited so that Charm uses this instead.

Charm features a single pass compiler, *armc*, and as such requires everything to be declared at some point prior to it's use. If forward references are made to as yet undefined procedures you have to use the

declare command to announce function prototypes.

A mono-tasking program editor is provided for authoring and debugging code. After years editing programs with Edit and *Impression* this at first seemed a little uncomfortable. However, I did warm to it because when the compiler discovers a syntax error the editor is automatically invoked with the erroneous program, the cursor positioned on the offending line.

The compiler produces either object code or assembly language output. The latter can be of debugging assistance if all other means fail, also giving an insight to the world of assembler programming to the uninitiated.

Figure II shows the assembly language output for the *Hello World* program listed in Figure III. Assembly language programs created in the compilation phase, or perhaps by hand, can be passed to the assembler — *arma* — for conversion to object code or a list file for more detailed assembly information.

Executables are built using the linker — *arml* — and can either take the form of applications or relocatable modules. In the latter case, the code is linked with the *mod* definition file which defines the execution entry points. Figure I shows the various locations for the input/output files for each of the above stages.

The Charm desktop application while useful when getting to grips with the compiler is really quite superficial. Everything it does can be achieved equally well through a few simple commands in an obey file. Incidentally, there is a program profiling utility which isn't supported by the desktop front-end. This allows program execution to be traced so time-wasting regions of code can be identified and, hopefully, optimised.

Table I: Hello World comes in a range of sizes

Machine	Operating System	Language	Compiler	Executable (bytes)
Acorn A5000	Risc OS 3.11	Charm	Charm 1.6	4,444
Acorn A5000	Risc OS 3.11	C	gcc 2.4.5	37,224
Acorn Risc PC 600	Risc OS 3.6	C	Easy C	1,476
Commodore Amiga 1500	AmigaDOS 2.1	C	gcc 2.6.3	2,432
IBM PS/2	MS-DOS 6.22	C	Borland Turbo C 2.0	6,542
Sequent Symmetry S2000	System V 3.2.0 Unix	Ada	Meridian 4.1.4	71,677
Sequent Symmetry S2000	System V 3.2.0 Unix	C	gcc 2.6.3	45,396
DFI 80486	System V 4.0 Chorus/MiX	C	gcc 2.6.3	4,664
Sun Sparc (? Pierrot)	BSD 4.3 Unix	C	gcc 2.7.0	24,576
Sun Sparc (? Tina)	System V 4.0 Solaris	C	gcc 2.7.1	5,016

```
        string  "hello"
        xdef    _start
        align
_start
        xref    _write_string
        stmfd   sp!,{rp }
        adr     r0,_11$
        bl      _write_string
        ldmfd   sp!,{pc }
        address
        align
_11$
        string  "Hello World"
        direct
        end
```

Figure II: Charm assembly language output for Hello World

```
 | Hello World - Charm version |
 module hello;
 include "io"
 ent proc start ();
         write_string("Hello
World");
 end_proc;
 end_module;
```

Figure III: Hello World - Charm version

Debugging

The compiler generally proved quite astute at locating syntax errors, causing editor throwback to the correct point. Some problems were experienced with real numbers in particular: While the compiler always permitted the declaration of reals inside functions, it often wouldn't let them have values assigned either upon declaration or in later calculations. The accompanying error report was quite mysterious, suggesting an invalid *memory reference* at the semi-colon after the *end_proc* which closed the procedure.

Tool support for tracing run-time errors was noticeably lacking. For instance, when a deliberate division by zero was forced, an accurate report of *why* the program had failed was given, but with no easy way finding out *where* the problem had occurred. A good debugger is always preferable to resorting to a myriad of write_string() statements.

A good compiler?

It's difficult to determine whether any compiler produces *good* or *poor* code. This is largely because it's a qualitative rather than a quantitative exercise and people have wide ranging views about quality. For example, let's assume the size of an executable (a definite quantitative measure) reflects the calibre of a compiler.

Figures III, IV and V list Charm, C and Ada sources for the classic *Hello World* program. These were compiled on several machines running various operating systems and compilers and the results summarised in Table I. This shows the executable files varied considerably in size, the largest almost 50 times as big as the smallest.

These differences are not, however, closely related to code quality but the number and size of other object files amalgamated with the program. Many compilers link a number of default binaries as well as those specified by the programmer, resulting in huge executables.

```
/* Hello World - C version */
#include <stdio.h>
int main(void)
{
        printf("Hello World") ;
        return 0;
}
```

Figure IV: Hello World - C version

```
- Hello World - Ada version
with TEXT_IO;
use TEXT_IO;
procedure hello is
begin
        put("Hello World");
end hello;
```

Figure V: Hello World - Ada version

Summing up

So why should you buy Charm in preference to another compiler which supports a more common language such as C or even Basic? I'm still searching for a definitive answer to that question, although the matter of price is definitely in its favour. If you disregard the public domain, this is probably the cheapest compiler on the Acorn market, a mere tenth the price of Acorn's C++ package. However, the low price shows in the form of the budget documentation.

Largely because it's less powerful than comparable languages, Charm is challenging and as such can prove an excellent cure for C sickness (sorry, but I had to squeeze that in somewhere). If you enjoy learning a new language every once in a while, or simply need something new to get your teeth into, that is reason enough to buy a copy.

Overall, Charm is a curious, reasonably powerful but often frustrating language which I'm determined to master. AU

Product details

Product: Charm v1.6
Supplier: David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool, FY5 1LR
Email: david@pilling.demon.co.uk
Price: £25 inc VAT and carriage (£18 when upgrading older version), Acorn Toolbox manuals extra £47
Requirements: 2Mb minimum

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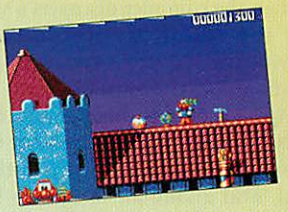
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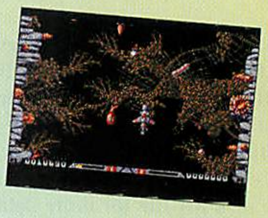
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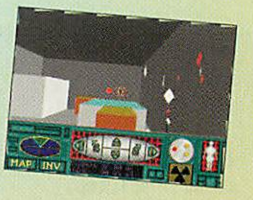
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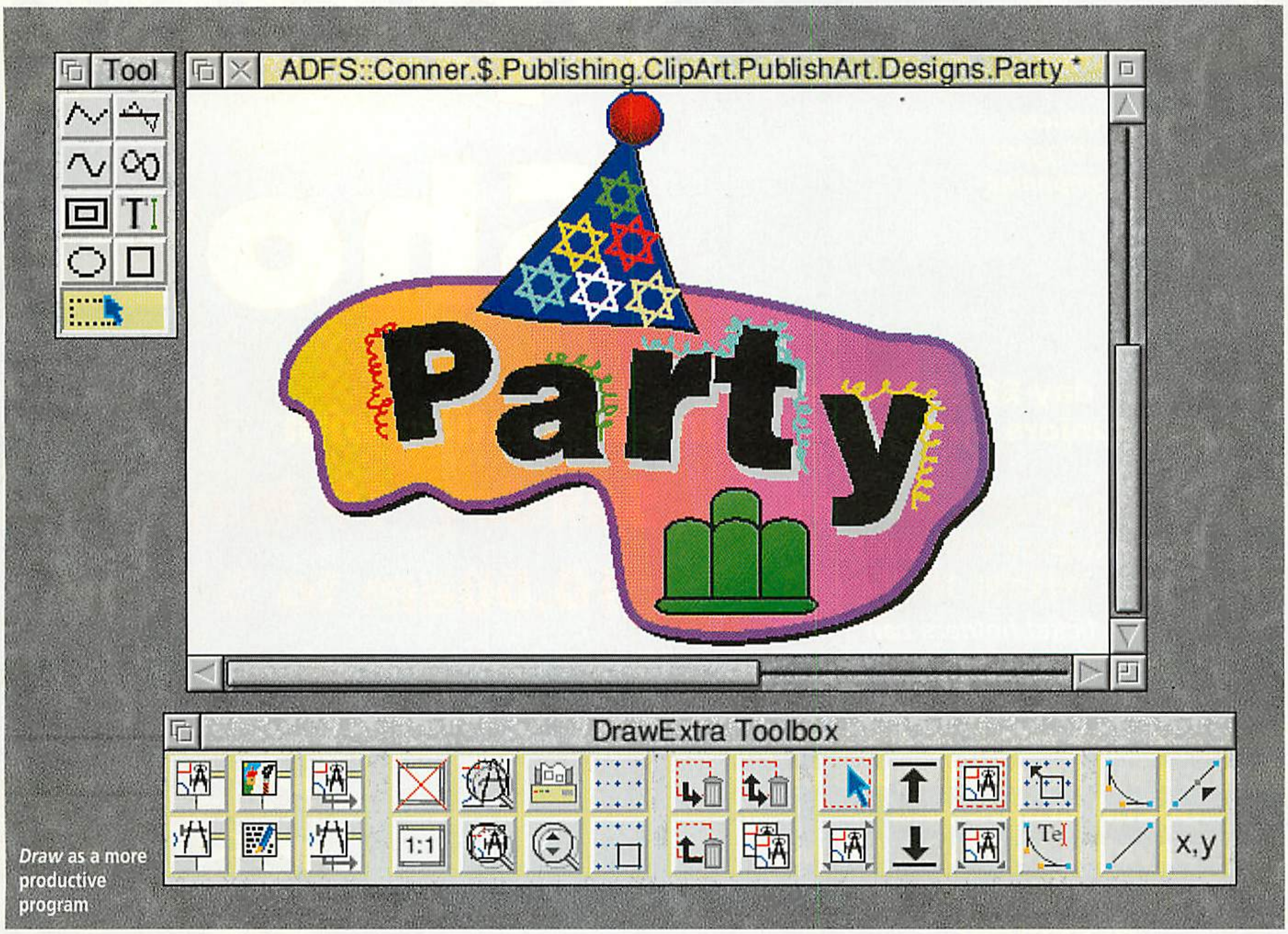
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Please allow 28 days for delivery. Offer subject to availability

☐ Please tick if you do not wish to receive promotional information from other companies.

DrawWorks



Draw as a more productive program

If you work with *Draw*, this could be just what you need. *DrawWorks* is a compilation of five add-ons for *Draw*. *DrawExtra*, which is what I perceive most people will buy the suite for, adds an extra button bar and enables choices for the default state of *Draw* to be set. It also converts the existing toolbox into one which can be moved about.

I've long hankered after a speedier way of zooming in and out in *Draw*. It was gratifying, therefore, that *DrawExtra*'s button bar offers just that. Furthermore, there are buttons to save, print, turn the grid on, select all, undo, redo...

DrawExtra's preferences window can set defaults for, among a multitude of others, what tool should be selected, the page size and whether the grid should be switched on. The only notable omission is the inability to change the default typeface and font size used from *System.Ghastly*.

Unfortunately, the preferences have to be saved by dragging an 'obey' file from a save dialogue box to a directory display which has to be double-clicked on for the choices to take effect. It would be preferable for the information to be saved directly into *Draw*'s *!Run* file.

The other utilities seem peripheral by comparison, although they can be decidedly useful. One of *Draw*'s almost fundamental flaws is its inability to take advantage of kerning information stored in fonts. Kerning is a method of making characters overlap (a W followed by an A can look untidy if they are not kerned together).

DrawKern takes any *Draw* file which is dragged onto its icon and acts upon the kerning information in the fonts used. Fantastically, the text in the resultant *Draw* file can still be edited (i.e. text is not converted into paths).

With the third utility, *DrawInfo*, a file can be dragged on to its icon, unveiling a window gorged of valuable information about it. It's amazing how many clip-art files are distributed with fonts which most people don't have: this shows if there are fonts used in the file and, perhaps more importantly, if the file is RISC OS 3 only.

The fourth of the utilities, *DrawScrunch*, takes any *Draw* file and does the equivalent of screwing up a sheet of paper and flattening it out again, which can generate pleasing effects for posters. The amount of scrunching is configurable. Lastly, *DrawMerge* merges all the objects in a *Draw* file, making cut-outs child's play to create.

A highly useful suite of programs which will increase productivity immensely. It's almost a pity that programs to do kerning and merging of *Draw* files were in *Info back in 1994.

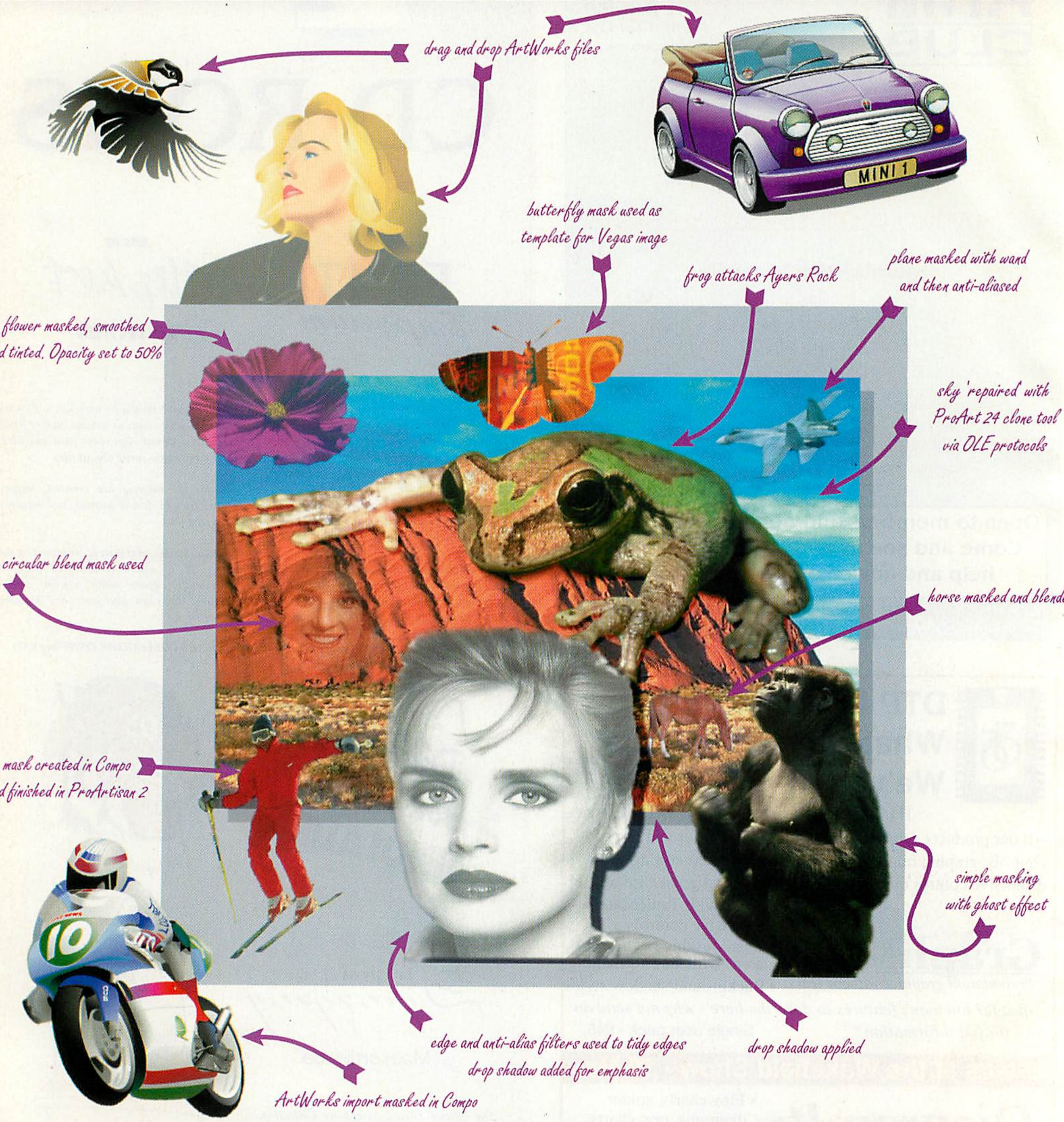
AU

Alex Singleton

Product details

Supplier: iSV Products
Tel: 01344 55769
Price: £9 (no VAT)
Pros: Increases productivity • Memory efficient
Cons: No interactive help

Composition



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GAME SHOW

Steve Mumford reveals news of some promising games in the pipeline

I'm afraid new releases are fairly thin on the ground at present – however, a veritable cavalcade of titles is approaching us even as I write, so grab those rose-tinted sunglasses and prepare yourself for what could be a busy summer.

Fans of *Bomberman* might be pleased to know that Paul Taylor, the author of the immensely popular game *Moonquake*, has plans for a sequel. Named *Marsquake*, it's going to be a complete rewrite – in Paul's own words: '*Moonquake*, from a programming point of view, is a tip!'. He's got a whole range of features planned for this new version, including bombs that can be pushed and thrown, conveyor belts, super-strength bombs, pipe networks that can carry blasts to other parts of the arena and what Paul describes as 'roaming bomb creatures'. During one-player games, the arena will be expanded to be several times its own size, although multiplayer games, now allowing up to four people to play, will remain limited to the size of the screen.

A moral to all prospective coders out there – Paul never expected to finish *Moonquake*, thinking instead that it would end up on his pile of half-cooked projects. Still, perseverance paid off and turned it into a household name. However, Paul has no plans to complete work on another of his half-projects – *Indiana Pea and the Raiders of his Lost Arc* will remain buried in obscurity.

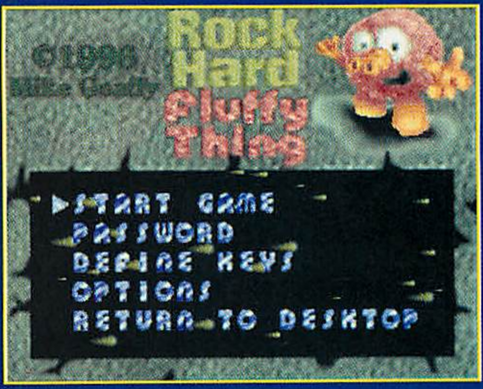
Furry puzzles

Mike Goatly is putting the finishing touches to a game named *RHFT* – an acronym for Rock Hard Fluffy Thing, so I'm told. It follows the adventures of a creature, looking suspiciously like a cross between a pig and a furball, as it negotiates mazes in an attempt to reap the local diamond population. The levels are filled with one-way sections, conveyor belts, springboards, bombs and crumbling ledges, and the stiff time limits imposed can really make it a challenge. A designer is supplied with the game so that you can create your own screens once you've mastered the mazes supplied.

Best described as an arcade puzzler, *RHFT* is gentle but demanding with a good learning curve – and the characterisation of the furry character can raise a smile. Although the idea is simple, Mike has developed it well and as a result, *RHFT* is great fun to play.

Mike is still creating a few more levels and he hasn't decided how he's going to release the game yet, but I'll let you know when and where it's available once the time comes.

Mike's also planning to write a three-player *Rampage* type game, but he thinks he'll need some help with the graphics. If any readers out there think they could lend a hand, either drop me a line or email Mike himself at M.P.Goatly@herts.ac.uk.



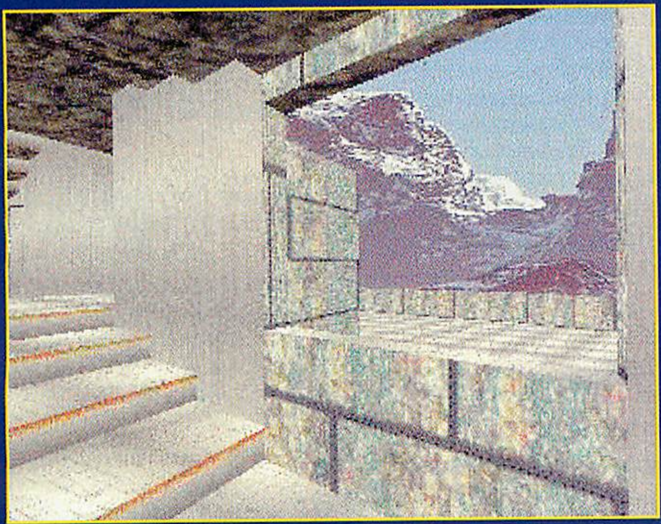
Doom-u-like

Finally, I've got some good news for those people who have been waiting in vain for the release of *Biohazard* – although the original author decided that he did not wish to continue with the project, he had the benevolence to release the source code on to the Internet in case any other valiant programmer wanted to take up the challenge.

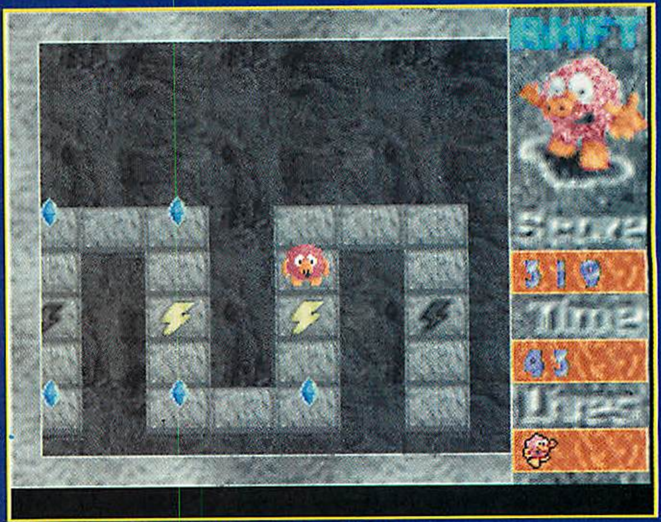
As yet, I haven't heard from any takers – if anyone out there is working on the code, please drop me a line.

Although *Biohazard* may have temporarily retreated into the background, Robert Templeman has leapt into the limelight with news of his project, *Destiny*. Inspired by the likes of *Doom* and *Duke Nukem 3D*, Robert's interpretation promises a selection of screen resolutions to suit your machine along with a wide variety of weapons ranging from your average pistol to limited-edition grenade launchers – maybe even warhammers and other bludgeoning instruments of doom.

The scenery can be damaged by gunshots or explosions, so expect to see lots of splintered glass and bullet-holes. The monsters will act together to try to catch you, and last but not least, you can keep tabs on the remote corners of each level by using the closed-circuit surveillance system. If you'd like to look at the game specifications, Robert has provided a web page which holds a list of the planned features along with some impressive screenshots. Use your web browser to access *http://mphhpc.ph.man.ac.uk/~mbcapr/DESTINY.html*. If the game plays as well as it looks, we could be in for some exciting action.



Superb 3D action in *Destiny*



Rock Hard Fluffy Thing: He's cute – but he's hard

Chess II

The rook's revenge? Steve Mumford investigates David Pilling's sequel



Ever since the computer was brought whirring and beeping into this world, chess games have been enormously popular – perhaps for the convenience of having a relatively good chess partner accessible at the flick of a switch. From my point of view at least, one of the greatest advantages of playing against silicon opponents is the fact that you can rewind the game if you make an embarrassing error. *Chess II* is an updated version of the program that's been available from David Pilling for quite some time. The author is Colin Granville, and he's included a wide range of features in this second edition.

As is common with most chess games these days, the board can be displayed in two or three dimensions. Personal preference it might be, but I've always been happier with the overhead view – no 'Virtual Chess As Seen From an Odd Angle' for me, thanks. The presentation is crisp and clear, and the program uses high-resolution icons if you've got the resources. If you're still not satisfied it's even possible to design your own.

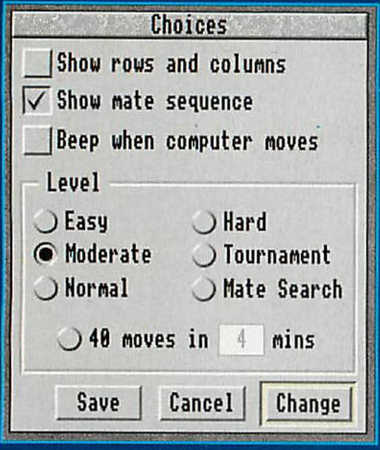
Now, I'd be the first to admit that I'm not what one might call *good* at chess – indeed, my one-and-only style of play could be described euphemistically as impetuous. *Chess II*, on the other hand, has a fully adjustable skill level, to suit most abilities from the beginner to the master. It manages this by providing a time limit for the first 40 moves – there's a range of presets to choose from, and you can enter your own time allowance if you wish.

However, absolute novices might find it hard to climb the first step as *Chess II* is still pretty competent on its lowest setting. This is where the replay feature can come in useful – a window containing video-style controls can be used to step backwards and forwards through the game and you can restart play at any point.

An interesting feature of *Chess II* is its ability to load in textual representations of chess matches in a number of formats – if you want to analyse the games reported in the newspapers, this is one way to go about it. It's ideally suited to handling electronically transmitted data, so if you've got a teletext adaptor or you've received transcripts over the Internet, it's just a question of dropping them into *Chess II* and letting it do the rest. If you're looking to save your game in some method, either for yourself or to send to another player, the moves can be output as a simple textual list as well as in a format unique to *Chess II*. Single game positions can be captured as a *Draw* file in case you want to document a certain position – the images look particularly impressive in this format.

If you're interested in tackling chess problems, the editing features of *Chess II* will prove to be useful, along with the special 'Mate Search' setting – the board can be set up to your precise requirements before submitting it to the computer to solve. Instead of working to a time limit, the computer player hacks away at the problem using all its resources until it reaches a solution. This can take some time, but a carefully applied cup of tea can ease the wait.

All in all, *Chess II* is a very able program and it will give all but the most demanding players a good game. If you're new to the hobby, I'd recommend searching around for an introductory guide as the manual isn't geared to providing this type of information. As always, patience pays off and don't be afraid to step back a few moves to find out where you went wrong. It might not provide animated battle scenes or *Sens-O-Rama Surround Sound* but it does give you a powerful chess engine with a simple-to-use interface for a most attractive price.



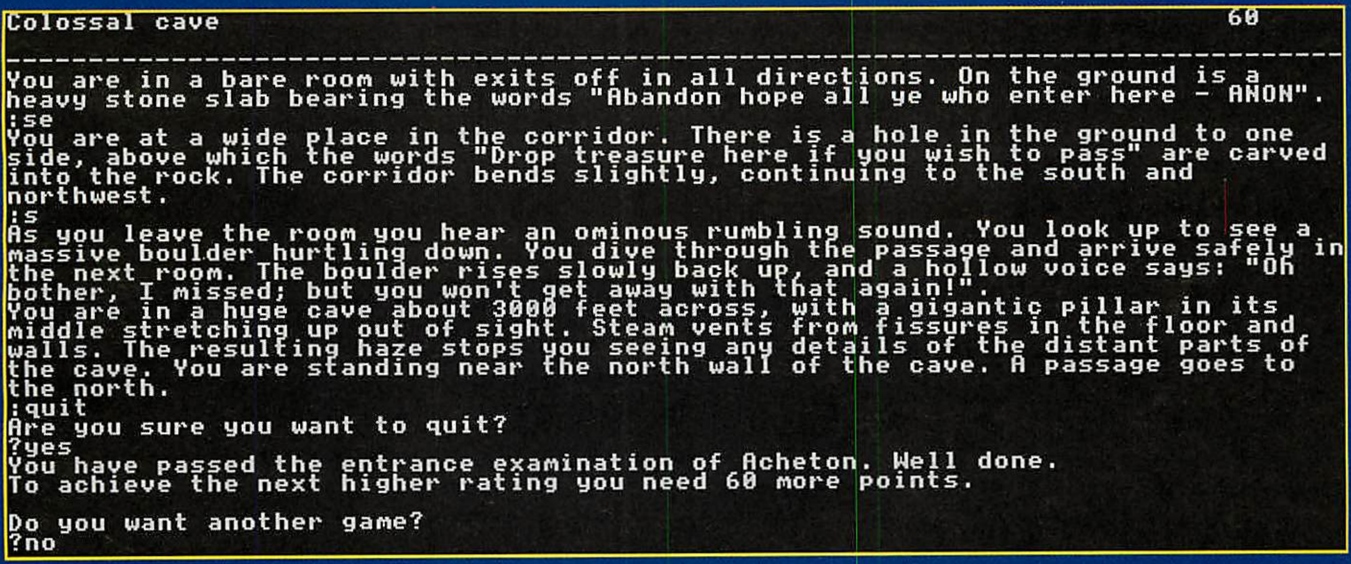


Product details

Supplier: David Pilling
Address: P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR
Price: £16 inclusive (£10 with disc if upgrading from Chess I)
Pros: Relatively cheap • Clear presentation • Easy to use
Cons: Manual a little thin • Novices might find it hard to get started

Go once more a-roving

Graham Nelson reviews *Acheton*, only 17 years late



In Byron's famous words, 'the sword outwears its sheath and the soul wears out the breast': likewise, *Acheton* is software which has outworn machine after machine.

Seventeen years is a quite a geological stretch of time in computing. When *Acheton* was written, in 1979-81, the top-of-the-range Acorn computer was an Atom with 2K of memory, which came in kit form. The authors – Jon Thackray, David Seal and Jonathan Partington – were research students at Cambridge who met while running late-night jobs on the Phoenix mainframe: the first two Adventure games, *Colossal Cave* and *Dungeon* (also known as *Zork*), had just arrived from America. It seemed a challenge.

The result was *Acheton*, as far as I know the first British game and the last of the three great 'cave' games. A mainframe program once thought huge, it was still being played right up to the demise of Phoenix, last year. The adventure-game assembler developed for *Acheton* led to a whole school of Cambridge games: *Hamil*, Peter Killworth's *Doom* trilogy, *Philosopher's Quest*, *Quondam* and many others.

If these names have a familiar ring to readers with long memories, it may be because Acornsoft took up the games. Having joined Acorn after taking his doctorate, Thackray succeeded in compressing *Acheton* to just 200K of database and program. As heroic as this was, the two-disc release still became the largest game published for the BBC Micro.

After Acornsoft was wound up, the rights to its Cambridge games passed to Topologika, who are still quietly supplying expanded RISC OS versions on request: though they call it a 'dead market'. The games survive, but only just. Perhaps there should be listed programs as well as listed buildings: I sometimes wonder how much historic source code has been lost.

Installation

Acheton will run on any 32-bit Acorn machine with RISC OS. I've been playing it on a Risc PC700; my only problem was that the arrow-marked Delete key wouldn't work. Installation onto hard disc – for convenience – was quick and easy, though the program disc has to be in the floppy drive at the start of each session. The disc also includes Jonathan Partington's splendid game *Kingdom of Hamil*, so it's two for the price for one.

Be prepared for a shock when the icon is clicked. Away go the pastel, Habitat shades of the 32,000-colour desktop and in their place appears chunky white System-font text on a black background: this game runs in screen mode 0 and it doesn't multitask. It's a struggle to remember the days when this seemed like fine print, right on the edge of what a monitor could display. But I did eventually grow used to it again

Product details

- Product: Acheton and Kingdom of Hamil
- Supplier: Topologika Software
- Tel: (01326) 377771
- Fax: (01326) 377771
- Address: Islington Wharf, Church Hill, Falmouth, Cornwall TR10 8AT
- Price: £20 inc VAT + £1 p&p
- Pros: A minor masterpiece • Large map • Consistent atmosphere • Excellent hints
- Cons: Rudimentary user interface • Thin on plot-lines • Poor text display

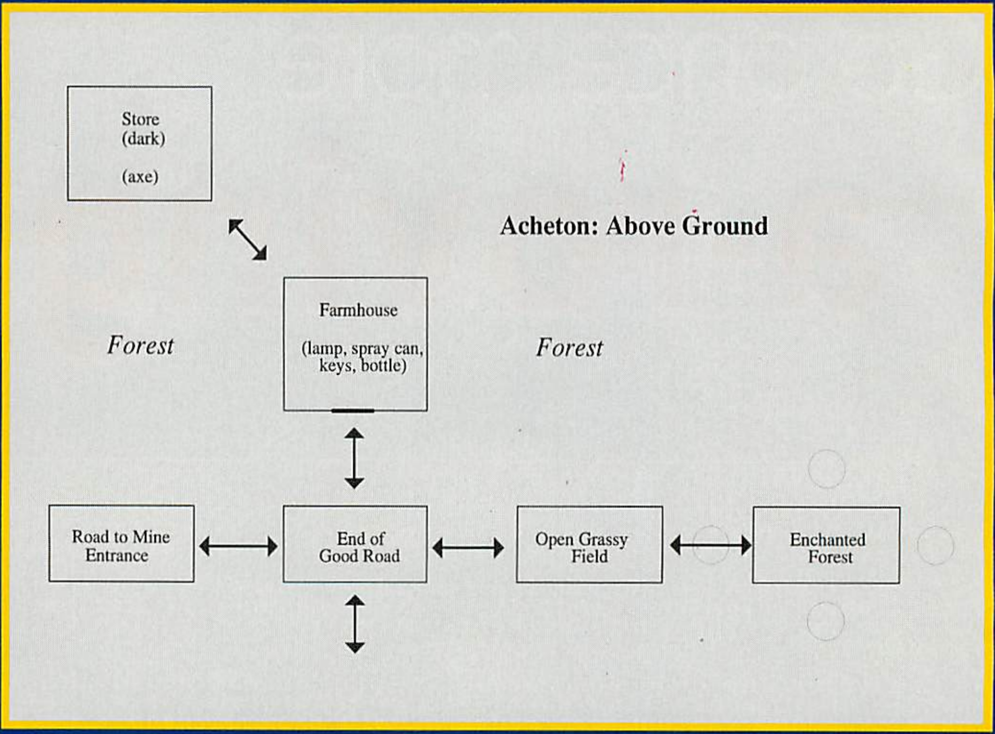
and find it comfortable enough to forget about. *Acheton* is also a little primitive at text recognition: only one or two word commands, with few modern amenities such as pronouns. But it does understand 'take all', saving games is easy and there are excellent layered hints.

The game in play

The word 'Acheton' is confected from 'Acheron', the mythological underworld, and 'Achates', a character from the *Aeneid*. This is a cave game, all right: we begin at a farmhouse in woodland and set off to collect the treasure buried in the caves beneath – the first puzzle being to find the way in. We have a spray-can of paint and an electric lamp, but the caves belong to an earlier time, a fallen medieval civilisation. Magic lingers on, with the 'mystic language of old Acheton' providing spells. I expected the magic system to be simple, yet it took me a long time to decipher the coloured stars on certain cave walls. There is nothing primitive about the puzzles in *Acheton*.

That first cave entrance expands into a rich expanse of game, with a good hundred locations accessible almost at once: *Acheton* has everything, an enchanted forest, a subterranean garden, a royal palace, misty caves, a magnetic lodestone where the compass goes haywire, a tunnelled-out glacier, an imprisoned Giant, a harbour-mouth cave and even an afterlife of sorts in Hades. Consistently good room descriptions and a well-organised map somehow glue it all into a single work of art. Like most early games, it's populated more with items than people: but puzzles are thick on the ground and there is plenty of variety.

Not all of this was very original. The wizard's house is rather reminiscent of the one in *Dungeon* – now known as *Zork II*. Several *Colossal Cave* favourites return: a network of secret canyons and a rock marked J4, for instance. *Colossal Cave*'s rock is marked Y2, an in joke for experienced readers of American cave maps: whereas J4 was the name of a famous discovery in the Cambridge pure mathematics department around 1980.



Computers come and go: they will one day 'go no more a-roving, so late into the night'. But *Acheton* remains a satisfying and subtle game, classic and influential. Buy now: while stocks last, and the moon be still as bright.

The Prologue's end

Something all the early games have in common is a neck of woodland nestling in a valley, concealing an entrance into the main game. This is really a cliché deriving from the original *Colossal Cave*, which was simulating the wooded ridges of the Kentucky karst belt. But almost every game has a Prologue of some kind: an initial section, not too hard or large, whose purpose is to prepare the player for the Middle Game.

This comes down to several things: establishing the player's identity and what is going on; equipping her with a few items – traditionally a lamp, a bag to carry things in, a bottle and so on; and setting an atmosphere. To hold the player up a little, the way into the Middle Game is always a puzzle of some kind: one can be fairly sure that the player will have thoroughly explored the Prologue before moving on.

Acheton is nothing if not traditional, and the region above ground is a good example of this, as the simplified map fragment shows. There are no physical barriers at the edge of the above-ground region, no mountains or cliff walls: instead, the forest becomes impenetrably dense. The player enters, wanders around for a while and always ends up back in the map. This can be convincingly implemented with only two or three game locations, with a little programming to give them shifting descriptions.

The farmhouse acts as a repository for the player's essential supplies. Only two rooms are provided, while the others are said to be 'boarded up'. The reason there are as many as two rooms is for a typical Prologue device: the axe is hidden in darkness to nudge the player towards learning how to switch on the lamp.

The player starts not in the farmhouse, though, but at the end of the road: and the road is the back-bone of this map fragment. We have the sense that this is the frontier of the discovered lands, beyond which lie adventure. That ought to be a hint to the puzzle of entering the caves: but what about the mine entrance, or the slight depression in the valley which lies to the south?

What makes the Prologue a test for any designer is that, on the one hand, the player only wants to reach the end of it, so that she takes little notice; whereas, on the other hand, the Prologue's quality is the biggest first impression any player has of the game. With this in mind, it needs to be unobtrusively well-written: not full of rambling screens of text, not stocked with terribly hard puzzles, just persuasive and welcoming. The hard part, of course, lies ahead.

Competition

Just time once more to remind readers of the *Acorn User Interactive Fiction Competition.* Write a short adventure game on any theme – without infringing anybody's copyright – and send it to me, along with a file containing the solution, at *Acorn User* by July 1. We hope to be publishing the best entries.

Acorn User reader offer

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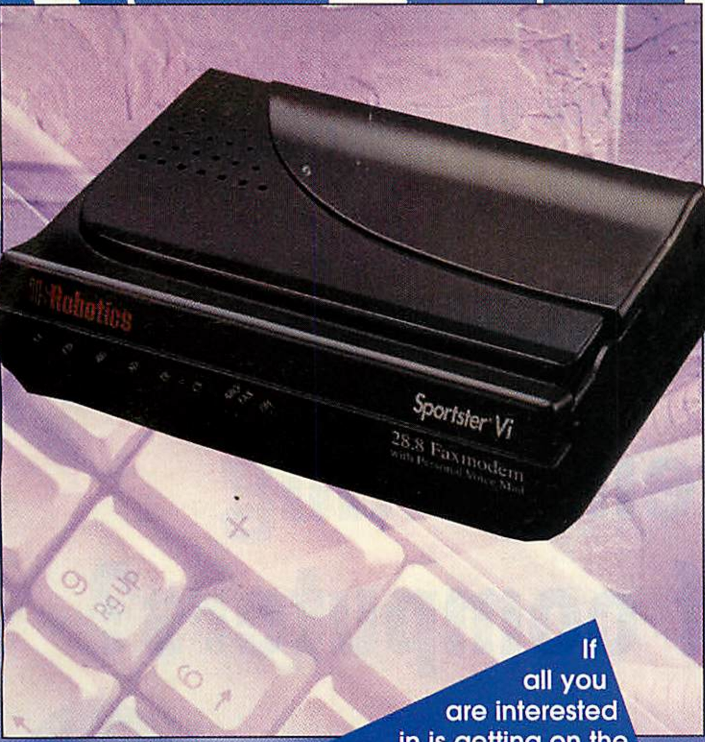
OFFER 2: High Speed Comms System

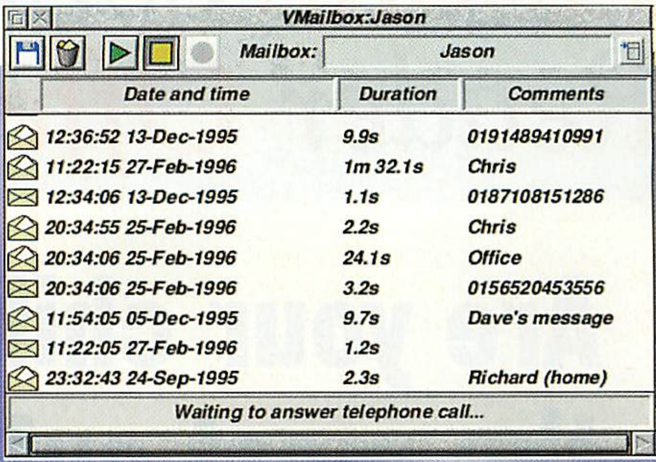
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The Global Village

I think it was Rex Malik who first used the term Global Village to describe the way in which our planet is 'shrinking' due to the widespread use of modern communication technology.

I'm always delighted to receive email from readers wherever they may live, but I'm particularly pleased and greatly encouraged to receive some from readers overseas.

This is partly because 'the word' is clearly reaching the far corners of the Earth and Acorn computers are not just within our shores (as many would have you believe). But if I'm honest, because I get a buzz out of it. This week I've received email from (among other places) Bolivia, Dubai and South Africa. There'll be more about Dubai and Bolivia in a future issue, but here is an extract from the mail from South Africa....

Dear Geoff

I am a computer teacher at a private girls' school in Johannesburg, South Africa. We use Acorn A3020 computers and am keen to establish a link of communication with one or two different European schools. I am looking for two groups of pupils to communicate with my two senior classes (11-13 years old) through the medium of letters typed on the computer. This is part of our Communications Studies Project in which we hope to promote the theme 'transition from conflict to co-operation' (from the European Studies Project) through communication to develop an insight into, and an understanding of different lifestyles. By breaking down barriers and opening channels of communication, co-operation will be established.

I am keen for my pupils to learn about other children of a similar age but in a different culture. The emphasis is on establishing and encouraging a comfortable, friendly atmosphere for the communication of ideas, opinions and concerns.

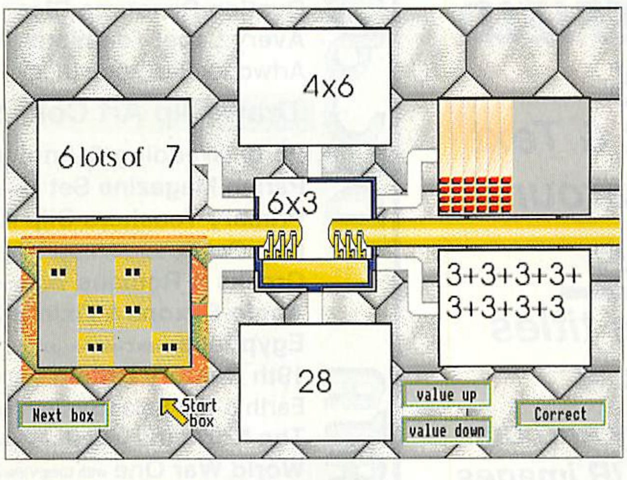
Yours sincerely
Andrew Rex

I have already sent a reply to Andrew and given him a couple of email addresses that were previously published in *Acorn User*. If anyone else wishes to contact him with a view to establishing communication between their school and St Mary's Junior School for Girls in Johannesberg, Andrew would be pleased to hear from you. Don't forget, I will publish email addresses of anyone who wishes to establish a pen-pal type arrangement through email.

Andrew Rex may be emailed on blackdog@stmary.jhb.co.za

The Table Aliens are on their way!

In view of the recent criticism of basic standards in primary schools, Sherston Software has announced a 'timely' product launch to help junior school pupils learn those all important multiplication tables. *Table Aliens* is a new maths adventure, designed by Sherston's best selling author, Simon Hosler, which puts the fun back into learning the tables in a highly original and motivating way.



The *Table Aliens* are coming and Earth is in grave danger. If primary school pupils can sharpen up their number skills they may be able to help, but it won't be easy! First pupils have to qualify to join the special task force which has been set up to combat the alien invaders, and then they are faced with a series of exciting adventures as they bravely do battle with these number-obsessed creatures from outer-space.

Table Aliens includes full teacher control and can be set to teach, practise and test any combination of tables up to 12. The program features 10 different tables activities which can be accessed directly or through the four exciting adventures. In addition to the program, the package will contain photocopiable worksheets to promote work away from the computer.

Table Aliens will be available for all Acorn 32-bit computers from April 15 and will cost only £24.95 ex VAT.

Give a dog a bad name

I have to confess, I'm not the number one fan of 10 out of 10 Software. However, I have recently received four packs of worksheets from them which were designed to be used either with or without the software.

I happened to glance at one and was rather impressed.

I gave them to my children who were immediately captivated. We spend a good part of a couple of evenings going through some of the sheets.

They really are very good, although I think some of the suggested age range is a little suspect.

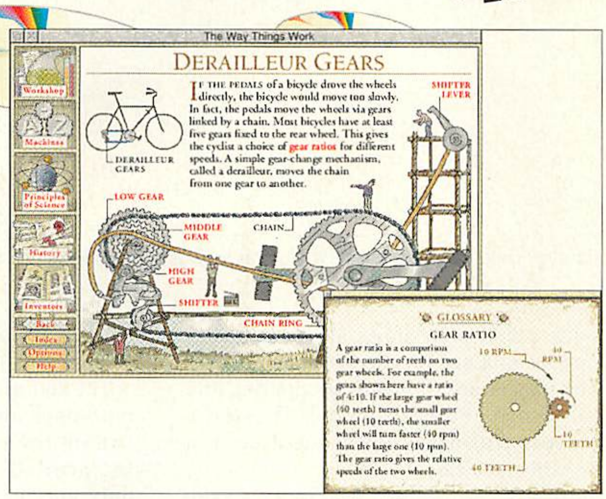
I'm sorry 10 out of 10, I might not like your software, but I think these worksheets are certainly worth full marks.

Contacting me

You can contact the Education page by writing to me, Geoff Preston at *Acorn User*, IDG Media, Media House, Adlington Park, Macclesfield SK10 4NP or by email to: aueduc@idg.co.uk

Round again

Geoff Preston looks at some of the latest CD-ROMs



It was really difficult selecting a picture to publish, but this one is typical

Before getting on to the latest discs, some news about tape: video tape to be precise. Yorkshire International Thomson Multimedia (YITM) have just finished a video for teachers on the use of CD-ROMs in the classroom. The 20-minute video features interviews with teachers and parents about ways in which CD-ROMs can help children both in the classroom and at home.

There are numerous scenes of children of various ages using the technology in a variety of contexts. These range from young children learning to read, up to Key Stage 4 Science students using a CD-ROM to investigate an experiment. Professor Ted Wragg adds some very pertinent comments at various stages. Although the video understandably features YITM CD-ROMs, I don't get the impression that this is merely a vehicle for advertising their products.

This video scores over other similar attempts in that many of the scenes feature CD-ROMs being used in the context of a particular lesson or subject. This will hopefully inspire many more teachers to try them. *Learning with 'Roms* is an excellent aid for a school INSET and will provide teachers with some clear ideas on how to implement CD-ROMs in their school.

With that in mind, here are some of the latest offerings which, in the correct context, could be a very valuable asset.



An excellent program for KS2 Art

Art Lesson by Christopher Jarman

Art Lesson is an extended lesson in Art, based on 10 themes drawn mainly from nature. It offers 280 pages of ideas, stimulus material and activities in a variety of art media. It opens with a description of the 10 on-screen buttons that are used during the program for moving between pages. Then comes a screen showing a view of the art room. Clicking on one of the objects within the room will take you to that section of the program. The sections include mixing colours, photography and a list of material required for each theme. There is also an Art Exhibition which shows some examples of work from some KS2 children.

Art Lesson is aimed mainly at Key Stage 2 although there is some material suitable for KS3. It costs £29.95 and is available from Nash Pollock Publishing.

The Way Things Work by Dorling Kindersley

This is not, in fact, an Acorn program, but a PC program which runs on the Acorn via a very clever piece of coding by Innovative Media Solutions. To get the most from this amazing program you really need a Risc PC or A7000 which can support more than 256 colours and has the processing power to make it run at a reasonable speed.

The graphics, most of which are animated, are extraordinary to say the very least. I spent the first hour just marvelling at the pictures before going on to look at what this program really offers. It is a complete encyclopaedia of just about everything mechanical which is designed to stimulate right from the very first screen. The explanations are clear and there are lots of cross reference links.

This software was sourced in America and the American accent may or may not be seen as beneficial to English viewers.

TWTW costs about £50 and can only be purchased through DK Family Library or IMS/CD Circle.

Software Collections

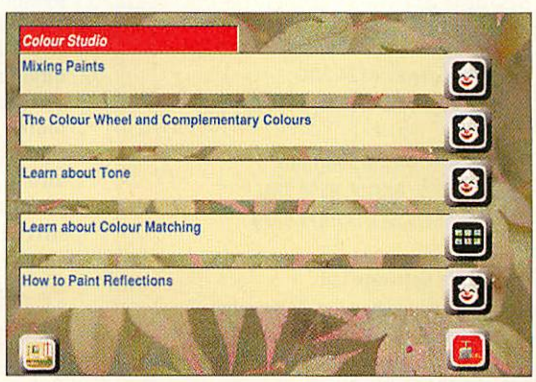
Collections of anything will inevitably include items the purchaser will never use. However, this fact does not necessarily mean the product does not represent value for money.

Providing you can use enough of the collection to justify the outlay, then it is, by definition, a good buy. Of all the software collections I've seen, these are about the only two I would consider buying.

BitFolio7 from Longman Logotron

Clip art has got a poor reputation, and deservedly so in my opinion. Such collections are notorious for including huge quantities of poorly scanned pictures, and/or draw files of mediocre quality which nobody would or could ever use.

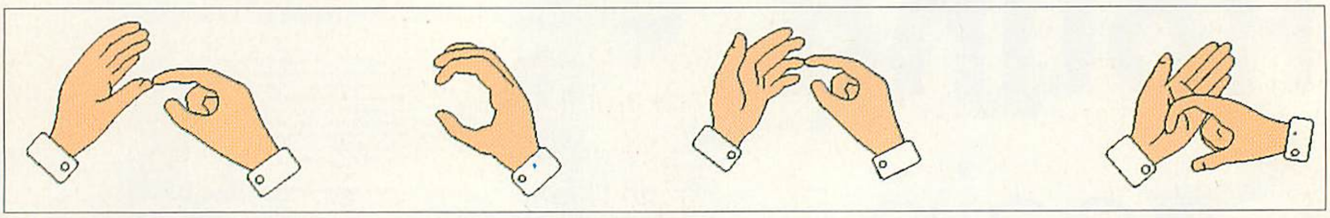
Bitfolio 7 contains a mind-boggling 10,000+ vector graphics all of which are of the highest imaginable quality. At £60 the cost seems high, but this CD-ROM comes



Clever animations like this are used throughout the program

CD-ROM roundup

EDUCATION



Bitfolio7 contains some these BSL signs as well as Braille, Morse and Semaphore

with a 260 page book showing every image contained on the CD in full colour. The images are thoughtfully divided into categories and each picture is given a codename/filename so that the image can be easily located.

For the very young, I believe it's a valuable exercise just looking up the pictures and then finding them on the disc.

Of the massive number available, the ones which caught my eye were individual maps of every country in the world, every flag you've ever seen and 40 superb drawings of hands for sign language. I would welcome information from readers about how these are being used to enhance learning for deaf people.

The end user may reproduce and distribute the images in printed form only. *Bitfolio 7* is a worthwhile investment for any school or anyone who does any DTP work.



Inspiration for teachers considering using CD-ROMs in the classroom

PDCD 3 by The Datafile

Public domain software and all the variations of it, (Careware, Shareware) have come a long way in recent years. This is largely due to companies like The Datafile, not to mention the high profile given to PD in *Acorn User*.

PDCD3 comes with a book containing a brief description of every piece of software on the disc. This enables the user to decide whether or not to bother to decompress it, and if so where it may be found. There is a staggering amount of software on this disc, almost all of which is compressed. Apart from the almost obligatory demos and sound samples there is plenty here for everyone. I can't begin to outline anything but a small sample, so I'll focus just on the education section which appears to be targeted at Key Stage 2 and lower Key Stage 3.

There are a couple of really well produced multimedia presentations, one in particular contains 112 pages about the Stuarts and another on the Tudors. These two alone almost make the £25 disc worth buying. There is also a really well thought out quiz program where you have to match the country, the capital and flag, there is some modern language software and a couple of graphing programs. Finally, there is over 22Mb of Pocket Book software, which will be reviewed at another time.

The Oxford Talking Infant Atlas by Sherston

Many of Sherston's talking books use so much storage space (due to the speech) they have to be supplied on an ever increasing number of floppies. *The Oxford Talking Infant Atlas* is still available on three floppies, but if you have a CD-ROM drive, this is clearly a better proposition as there is no disc swapping. Like the disc version, the CD-ROM costs £20 + VAT.

My children have used every one of Sherston's talking books and both they and I continue to marvel at them. The *Oxford Talking Infant Atlas* is in three parts, *The Earth in Space*, *The World* and *Europe and the British Isles*. Between them, they introduce the concept of Earth as a planet, having areas of water and land, and the land being divided into countries. Sherston's current licensing policy means that for a Primary School, this CD-ROM costs just £30 for a full site licence.

The Crystal Rainforest by Sherston

This is another CD-ROM version of an existing floppy disc based program selling for exactly the same price: £44.95 + VAT. As with most of Sherston's software, a huge amount of printed material is supplied in the pack including full colour maps, a teachers' guide, and probably of greatest use, a list of National Curriculum subject attainment targets that this material could address. *Crystal Rainforest* addresses 18 attainment targets in at least four subjects (Maths, Science, Technology and Geography). A ready made teaching module if ever I saw one. AU

Contact details

YITM
The Television Centre, Leeds, LS3 1JS
Tel: 0113-243 8283
Fax: 0113-243 4884

Nash Pollock Publishing
9 Carlton Close, Grove, Wantage, Oxfordshire, OX12 0PU
Tel: (01235) 772118
Fax: (01235) 771607

Longman Logotron
124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS
Tel: (01223) 425558
Fax: (01223) 425349

The Datafile
71 Anson Road, Locking, Weston-Super-Mare, Avon, BS24 7DQ
Telephone/Fax: (01934) 823005

Innovative Media Solutions
PO Box 332, Bristol, BS99 7XL
Telephone/Fax: 0117-979 9979

Sherston Software Ltd
Swan Barton, Sherston, Malmesbury, Wiltshire, SN16 0LH
Tel: (01666) 840433
Fax: (01666) 840048

A Lesson in Logic

Following on from the success of Camboard's *Simple Circuits*, Geoff Preston looks at the three applications, collectively known as *Logic Gates and Counters*

In days gone by, when students studied GCE and CSE, and Computer Studies was all the rage, one of the topics that had to be covered was that of Boolean Algebra. George Boole did a great deal of work on this branch of mathematics in the mid 19th century and as a result gave his name to it.

Boolean Algebra is a calculus of binary variables and its extensive use in computing stems from the fact that the information transmitted in computer circuits is represented by two values: 1 and 0. These values may be variously interpreted and on/off, true/false, high/low, north/south and so on.

Logic gates are rather like switches and are the main component of integrated circuits. The same Boolean logic can be applied to them. There are four main logic gates: AND, OR, XOR and NOT. The last can be combined with the first two to form NAND and NOR. With the exception of NOT which is unary (acting on a single input), all gates have two inputs called operands, and one output. The state of the output will be determined by the state of the two operands and the type of gate. To explain how the gates worked, I used to give students 'everyday' sentences to help them with the logic. The sentences were banal in the extreme, but seemed to work.

AND *'You can go for a drive in your car if you have petrol AND a driving licence.'* In other words, if either one of the two things are missing, you can't use the car. In Boolean terms, both inputs must be true (or 1) for the output to be true. Do not confuse this operand with plus (+).

OR *'You can go shopping if you have cash or a cheque book.'* If you have both, that's fine, but you must have at least one. In Boolean terms, either input may be true to output true. Only if both inputs are false will the output be false, (or 0).

XOR *'You can get married to either Mary (X)OR Jane.'* Not a typical English sentence because XOR is not an everyday word, but the principle is correct: you can marry one, or the other, but not both. In Boolean terms, the inputs must be different for the output to be true (or 1).

NOT It isn't easy to apply a common sentence to this operand. The NOT gate effectively flips the input so that if the input is false the output will be true, and if the input is true the output will be false.

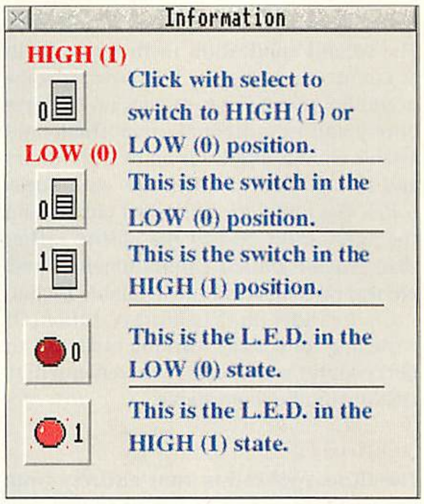
NAND is effectively an AND gate with a NOT gate attached. In Boolean terms, both inputs must be false for the output to be true, (or 1).

NOR, is effectively an OR gate with a NOT gate attached. In Boolean terms, either input may be false for the output to be true. Only if both inputs are true will the output be false (or 0).

Truth tables can also be used to show the various inputs and outputs for particular gates. Using two bits (binary digits) there are four possible arrangements of the inputs: 00, 01, 10, 11. The truth table displays the outputs for each particular gate.

Logic Gates and Counters

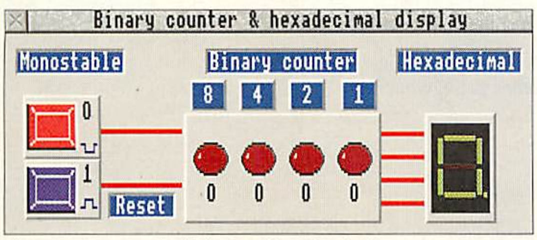
If all of that seemed rather heavy, *Logic Gates and Counters* will help. The program from Camboard Technology comes in a five inch hinged box on two discs. The manual, it transpires, is on disc one as a text file and a *Draw* file. I'm not overimpressed by this practice, but in this case the use of the program is largely self-evident, so I suppose it's excusable and it certainly keeps the cost down. You only need about 30 minutes with your DTP to produce a manual and from then on you can print as many as you need for little cost. The software is provided as three separate applications called *Logic Gates, Counters* and *Simulate*.



On screen help is always available

Logic Gates

These take the user on a tour of logic gates in a friendly easy-going style. The presentation is basically nine 'pages' of mixed text and graphics describing how the different gates work. There are several clear 'down-to-earth' explanations to help clarify what can be a difficult topic to grasp. Also included are several simulated experiments to work through and questions are given at each stage. You can display truth tables as well as 'working' diagrams of the gates. The diagrams are clear, although you do need to be in a 256 colour mode to distinguish between a red LED being on or off.



The counter actually lights up the LEDs in binary sequence

Counters

The second application in the suite looks at counters and begins by showing some examples of their uses. It goes on to cover binary and hexadecimal, monostable and astable circuits and leads on to 4 bit binary and hexadecimal counters. As with *Logic-Gates*, the topics are conveyed clearly and the animations add to the clarity rather than provide aimless entertainment. There are several help windows available including a hexadecimal to binary table. Of particular note is the working model of an LED counter which can be incremented by clicking on the monostable.

Simulate

The third application runs entirely from the application menu on the icon bar and combines the logic gates with the three digital counters. I'm not quite sure of the purpose of this other than to enable the user to display a window whilst using a word processor to write about it.

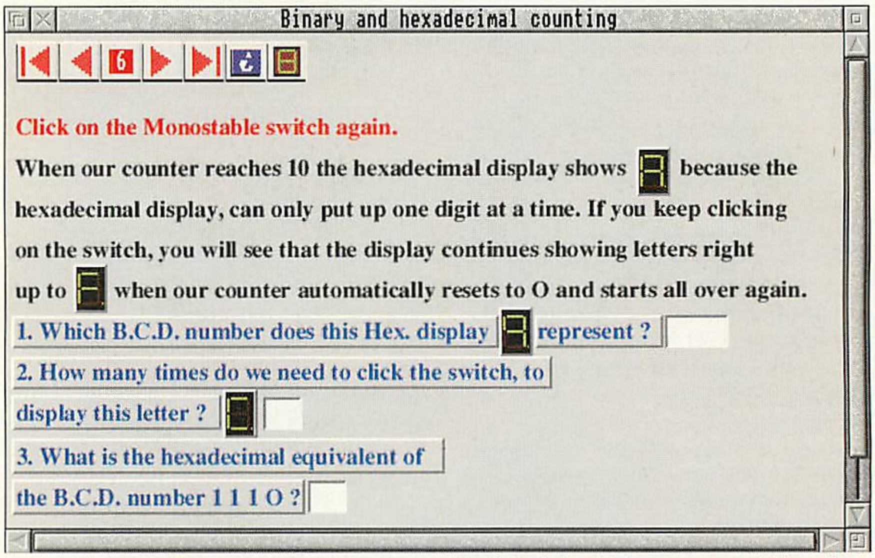
Conclusion

This program is an excellent example of what a multimedia presentation should be. Self-help is the phrase of the moment and this presentation encourages students to learn for themselves. It makes it fun to investigate. It's lively and is an outstanding introduction to the subject.

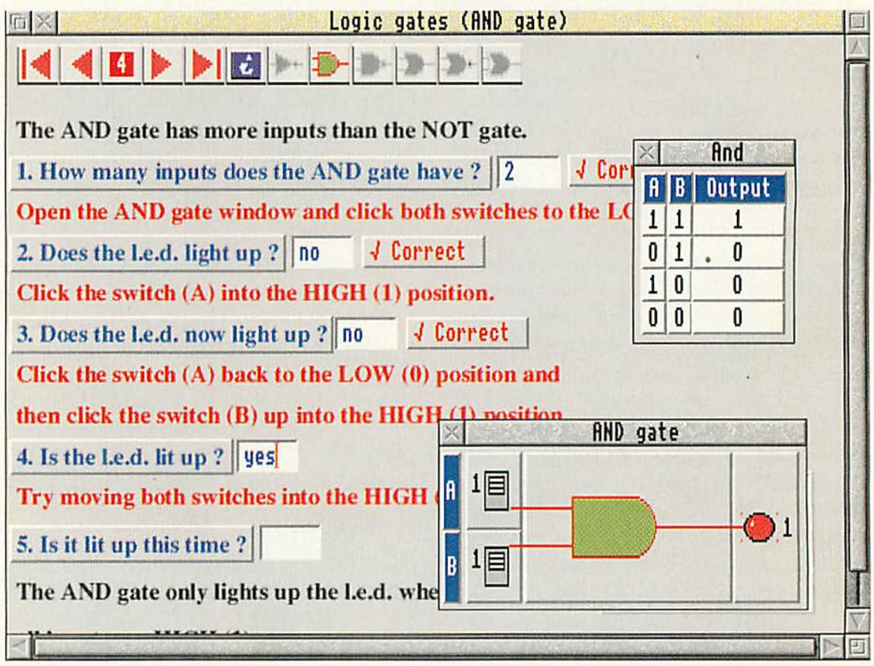
All too often I see multimedia productions that have taken the word 'multi' too literally and have produced an over-complicated maze that nobody wants to wade through. This suite uses only the features it needs, when it needs them. In that respect, it's difficult to find fault. The software aims to be a computer aided learning package delivering what many would regard as a fairly uninteresting topic.

It delivers the material well and presents good questions based on simulated experiments conducted within the application.

I suppose, being a teacher, I would like to see it aimed more squarely at the classroom by providing additional paper based material which could further test the understanding of the topic. But that's a minor quibble: it's an excellent program which should be in every Technology and Science Department. AU



Learning hexadecimal is just one part of this package



The questions are based on the experiments with truth tables to help

Product details

Product: Logic Gates and Counters
Supplier: Camboard Technology
Tel: (01223) 264512
Email: 101320,447@compuserve.com
Price: £16.95 + VAT for a single user or £49.95 + VAT for a full site licence

Give it a try

To revert to my Computer Studies Teacher guise, what is :

a. 12 AND 7?
b. 13 OR 6?
c. 7 XOR 5?

Answers bottom right.

Test these on your computer by going into BASIC (press f12 and type BASIC) and entering:

```
PRINT 12 AND 7
```

followed by Return. BBC BASIC will accept all Boolean expressions, although Exclusive OR must be entered as EOR and not XOR. To calculate 'by hand', convert all numbers to binary, calculate the corresponding bits and convert back to decimal.

For example 12 in binary is 1100 while 7 is 0111

Apply AND to each of the corresponding digits (from left to right) 1AND0=0, 1AND1=1, 0AND1=0, 0AND1=0. Result: 0100 in binary, which is 4 in decimal.

Answers: a. 4 b. 15 c. 2

Free Ads

• Acorn RiscPC 700 with colour monitor AKF60, keyboard, mouse, 13Mb RAM, 210Mb HD - 100Mb partition for PC card, 3.5 disc drive, built-in sound and graphics, Cumana Indigo CD-ROM, 486 DX4 100MHz PC card, Windows 3.1. Other software available: Flashback, Wolfenstein, Burn-Out, Chopper Force, Artworks. £1999. Call Robin on (01509) 843297.

• A3000, 2Mb RAM, RISC OS 3.1, colour monitor, 5.25in floppy, software, books. £300. Tel: Rob on (01344) 51006 (after 6pm).

• A3000 2Mb RAM, RISC OS 3.1, 40meg internal HD, 14in Alphascan high res colour monitor, all boxed with manuals. Style , Easyfont, Pipedream, all installed. £300. Tel: (01256) 461566.

• Risc PC 600, internal CD drive, 8Mb RAM, 210 HD, 486 card, 'Advanced' DTP, 4 recommended games, many extras, 1 year old, worth £2000+, will accept £900. Tel: (01895) 272698.

• 2 x CA Dab Hand guide, £8 each. CA Dab Hand guide example disc, £3. Tel: (01353) 664219 (evenings & weekends only).

• Panasonic KX-P1123 24 pin DM printer with memory upgrade, new ribbon, manual. As new, £100 ono. Tel: Coventry (01203) 319519 (evenings).

• A3000, 1Mb, colour monitor, stand, Panasonic printer, manuals, Desktop publisher, Pipedream 3, plus games. As new. £385. Tel: (01932) 224201.

• Flashback, Canon Fodder, available for exchange, looking for Simon the Sorcerer, Wolfenstein together or separately. Also complete packaging for an A5000 wanted. Tel: (01633) 270031.

• A3020, 4Mb RAM, 61Mb HD, AKF18 monitor, loads of software, £500 ono. As above plus 486 processor card with additional 4Mb RAM allowing PC operation. £620 ono. Tel: 0181-325 5143 (Beckenham, Kent).

• Aleph One 386 PC podule, 4Mb RAM, Fast PAL + PC emulator (Acorn) v1.81, MS-DOS 3.3 and 5.0, £150.00. Tel: 0181-679 0805 (evenings).

• Impression Style, still boxed, brand new, not used or registered, £70. Tel: 0116-289 2296 (after 5pm), ask for Ash.

• Wanted: Any BBC level 9 text adventure games, eg, Snowball, Return to Eden and Worm in Paradise. Tel: John after 6.30pm on (01257) 275950.

• A4000, 4Mb RAM, 80Mb HD, AKF50 monitor, Scanlight 256 card, Turbo drive (Canon), Acorn Home/Office pack, manuals, software, cables. £700 ono. Tel: 0181-504 9506.

• Acorn A4000, 2Mb RAM, 210Mb HD, never used. £500 ono. Tel: (01329) 289416.

• Acorn A3000, 2Mb RAM, fitted video enhancer, allows screen resolution 1024 x 640, 14in NEC Multisync colour monitor, cables and manuals. £350. Tel: 0181-967 3048 (Middx).

• Wanted: Reasonably priced games or educational discs for Acorn A3010. Phone: (01784) 453905 (Staines, Middx).

• A3000, 2Mb RAM, Acorn monitor, Learning Curve, educational WP and games software, manuals. £250 ono. Tel: (01491) 874371.

• A3000, 4Mb, 30 HD, CUB 3000 monitor, Star LC10 colour printer. Some software. RISC OS 3.1, manuals, applications, discs. £325 delivered. Tel: Southend (01702) 714298 (evenings).

• Risc PC, 16Mb, 1VRAM, CD-ROM, PC card, 17in monitor, Mozart sound card, £1700, 2 year guarantee. Tel: 0151-639 7261 after 6pm.

• Risc PC 600, 9Mb RAM, 420Mb HD, SVGA 14in monitor, PC card, CD-ROM, £1500. A4000, 2Mb RAM, 80Mb HD, 14in monitor, Home Office, PC Emulator, Inkjet JP150 printer, £650 + games from £10 each. Tel: (01763) 231059 after 7pm.

• A3000, 2Mb, VIDC Enhancer, software titles, including Pipedream 4 and games, £110. Taxan 795 Multivision, £150. Panasonic KXP1081 printer, £70. Cables and manuals included. Tel: (01204) 308849.

• Risc PC 600, 5Mb, 210HD, AKF60, some software, all manuals, boxes etc. All in excellent condition, £950 ono. Tel: Derby (01332) 672480 after 6pm.

• Risc PC 600, 10Mb, 210HD, CD-ROM drive, 16 bit sound and 486 PC card. Software includes Fireworkz Pro, Impression Style and Artworks, £1275 ono. Tel: (01909) 515507 (Sheffield).

• A310, 4Mb, ARM3 + FPA, RO 3.10, VIDC enhancer, SVGA monitor (800x600x16) SCSI, 46Mb drive. I/O podule, 2 x floppies. £350. Tel: Ian Nichols on 0117-962 4825 (evenings) or email: i.a.nichols@bris.ac.uk

• A5000, AKF 18 monitor, all manuals and full Learning Curve software, excellent condition, £500. Tel: (01484) 720716.

• Risc PC 600, 10Mb RAM, 1Mb VRAM, 420 + 240Mb HD, 2 slices, 14in monitor, £1250 ono. Tel: (0468) 360903 anytime.

• A540, 16Mb RAM, 100Mb SCSI HD, RISC OS 3.11, Serial Port Dual SCSI/HD card, ColourCard Gold, Acorn MEU, Taxan 775, Aleph One 486SLC2/50 with 4Mb RAM, Scanlight hand held scanner, Pipedream 4, £1300 ono. Tel: (01865) 779689.

• A310 4Mb RAM, 40M HD, RISC OS 3.1, colour monitor, mono monitor, software and games. VGC, boxes and manuals. £300 ono. Tel: 0114-288 5492.

• Citizen Swift 240C printer, c/w cover and ribbons, £75. Printer stand, £5, CC Turbodriver Cannon v4, £10, Picture IT, £15, Quest for Gold, Arcade Soccer Hero Quest, 10 out of 10 Maths and English, £7.50 each. Tel: (01962) 880250.

• Pipedream 4 software package, original, unused, unregistered. £25 plus postage. Tel: (01706) 817570.

• A310, 4Mb RAM, OS 3.10, colour monitor, 2ddrives, 3.5 + 5.25 with PCU ROM/RAM board + Interword and RAM Backplane and Fan Star LC10 printer, Pipedream 4 discs and manuals, £300 plus carriage. Tel: 0191-234 0119.

• Xenon II, Pandoras Box, Pon, Slappit, Guild of Thieves for sale, £5 each or all for £20. Tel: (01383) 772691.

• Various BBC 8-bit pogramming and reference books, ROMs, essential for new learner or beginner. Tel: 0191-285 0097 (evenings) for more details.

• ST506 podule, suitable for A30x0 series etc, for Hard Disc expansion with 'second layer' (adds to first layer) expansion box hardware for PRES podule box. £25 the lot. Tel: 0191-285 0097 (evenings).

• A3000 RISC OS 3.1, 4Mb RAM, 30Mb HD, Serial Interface, Philips colour monitor, manuals, applications discs, VGC. £295. Tel: (01372) 815184 (Surrey).

• A5000, 160Mb + 40Mb hard disc. Fax Pack, Scanlight 256 scanner and video digitiser, modem. Impression Publisher Plus, Artworks, Squirrel etc. £550 ono. Tel: Mark 0181-959 7105.

• Wanted: Omar Sharif's Bridge. Fair price paid. Tel: 0131-667 1467.

• A3 printer BJ230, as new, cost £340. Sale due to surprise gift of colour printer. First sensible offer secures. Tel: (01746) 765732 (evenings and weekends).

• A5000 LC 4/80; Taxan Multiscan monitor; Hand scanner; Epson LQ500 printer; Joypads; Style; ProArt2; many games; £550 ono. Tel: (01246) 217350 (work), (01246) 208877 (home), ask for Dave.

• For sale: Acorn Advance software. Package contains Word processor, Spreadsheet, Database and Graph. Unopened. An unwanted gift. £70. Tel: Nottingham 0115-966 5060.

• A5000 4Mb, AKF18 monitor, 2 x 540Mb HD, SCSI interface, 330Mb external HD (SCSI). Midi/Sound sampler interface, 486 PC card. Lots of software. Boxed c/w manuals. £1200 ono. Could seperate. Tel: Trevor (01775) 710640.

• BBC Master 512, switchable 40/80 3.5 5.25 Cumana Twin Drive, mouse, ADFS, 512 shareware, lots more software. Little used. £80. Tel: (01772) 864994.

• Wanted: Version 4 of Acorn C compiler, Acorn Computers Ltd, with manuals. Tel: (01703) 392915 (evenings) or email wim@soton.ac.uk

• Risc PC 700, 10Mb, 850HD, Quad speed CD-ROM, xtra slice, X86 PC card, 14in screen, 80 watt speakers, Cannon BJC 4000 colour printer + software. 4 months old, too good for my needs. £2350 ovno. Tel: 0181-876 9651 (SW London)

• Wanted: Cheap but in good condition and error free hard disc for an A3010. Anything considered. Tel: Hereford (01432) 358213.

• Risc PC 600, 9Mb, 425Mb hard disc, AKF60, warranty,14k4 Modem, Inkjet printer, serious software, games. £1570. proTeus CD - cartridge drive, SCSI2 interface, £550. Call (01509) 264934 (evenings).

• Oak Recorder III sampler £20; Micro User/Acorn Computing/Acorn User Jan86 - Dec 95 (120+ issues), 80 discs, £10; Acorn DTP, 1st Word+, PCEm + DOS, Enter the Realm, Speech!, Genesis, Terramex, Wimp Toolkit, RenderB. Demos, 35 ArcWorld discs, £15 the lot. Buyer collects. Tel: North London 0181-346 3768 or email: ajas2@cam.ac.uk

• Acorn software for sale: StartWrite wp, £6. Chopper Force, £8. Spelling Book, £10. English 10/10, £6. Maths 10/10, £6. PC Emulator with DOS + books, £20. Pipedream 4, £25. EasiWriter v3.16, £25. Almanac, £25. Tel: (01474) 356985.

• Software: Desktop Tracker and lots of music, £35. Sim City, £8, Cyborg, £5. Pandora's Box, £3. Also loads of PD. Tel: David 0191-253 1883.

• A5000, 4Mb RAM, 40Mb and 170Mb HDs, RISC OS 3.1, Multisync monitor, PC Emulator, lots of software, excellent condition, boxed with manuals. £575 ono. Tel: (01246) 237037 (Chesterfield).

• A3010 VGC 4Mb RAM 80Mb HD, Cannon BIDEX Bubblejet printer, Impression Publisher, Schema 2 plus more, computer table and chair, £550. Tel: (01582) 422350 after 6.00pm.

• Impression Publisher (Computer Concepts), complete with manual, unregistered and unused, £85. Tel: (01405) 764598 after 6.00pm.

• A5000, 2Mb RAM, 80Mb HD, RISC OS 3.11, AKF18, JP150, Leading Edge joystick, Learning Curve, EasiWord, Pipedream 4, Battlechess, Lemmings, Pandora, Interdictor, manuals, £600 ono. Tel: 0181-866 3913 eves/weekends.

• Games for sale: Dune 2, £15. Carnage Inc, £12. E-Type 2, £12. FTT, £12. Speedball 2, £12, ono. Swaps considered also. All good condition. Tel: Stephen (01823) 662206 evenings.

• For A3000, 1-2Mb RAM upgrade, £20. Pipedream 4, £20. Impression Style, £70. Tel: Steve (01304) 812537.

• Games: Lemmings1/2, James Pond 1/2, E-Type + Designer: £10 each. Cannon Fodder, Diggers, Populous, Birds of War, Pandora's Box, Chocks Compendium: £15 each. Swiv £5. Also Multistore, £60. Ring (015395) 68257.

• Integrex Colourjet 132 printer, £60. Tel: (01922) 57814.

• Risc PC 17Mb 420HD, CD 486, £1100. A440, £250. SCSI 2 tape, 2nd HD, masses of cards and original software including Publisher, Artworks, Sibelius 7, DDE PC card. Tel: (01362) 683633.

• 4Mb SIMM for Risc PC, £65 ono. Archimedes games (not RPC) for sale or swap. Tel: 0181-861 6215.

• For sale: 8Mb for Risc PC, £160, Eagle M2, £190, ArtPad, £100, A4 graphics Tablet, £300, Photodesk, £100, Publish Plus, £150, Artworks, £90, Prophet 2, £100. Tel: (01900) 814602.

• A410 4Mb, 210 HD, monitor, new keyboard, software, £400 ono. A3010, as new, boxed, £100 ono. Tel: 0181-445 3690 or 0956 540055 or email cxw1140@s2.cxwms.ac.uk

• A310, 1Mb RAM, colour monitor, Menon, Impression II, Pinpoint, PC Emulator, Revelation Pro, Junior Databases, Crystal Maze and loads more, £200. Tel: Alan on (01249) 652121.

• Archimedes A5000, 4Mb DRAM, 203Mb HD, FPA. Eizo Flexscan 9060S colour monitor, £650. Tel: (01223) 862293.

• Acorn A3000 4Mb RAM RISC OS 3.1, Arm3, SCSI card (no drive), loads of software, including CC Style, games, including SF3000, Spheres of Chaos. Bargain at £200. Ring Kashif on 0181-689 7433.

• A3020, 4MB RAM, 61Mb HD, AKF18 monitor, loads of software, £450. As above plus 486 processor card with additional 4Mb RAM allowing PC operation, £570. Tel: (01322)392453 (day), 0181-325 5143 (eve).

• Risc PC, 8Mb, 210HD, CD-ROM, AKF60, PC card, Scanlight Video, Impression, Alone in the Dark, 1Mb VRAM, ProArtisan, manuals. Boxed, lots of software. £1700 ono. Tel: (01983) 883188.

• Star LC24-200 colour dot matrix printer 24 pin, parallel interface, paper park function, friction or tractor feed, 5 fonts with italic versions. £140 ono. Tel: (01772) 436499.

Acorn User Free Ads Service

Why not take advantage of our free reader ad service? Fill in your details on this coupon (25 words maximum, one word per box below) and send it to Free Ads, Acorn User, IDG Media Ltd, Media House, Adlington Park, Macclesfield SK10 4NP. Only one ad per reader, please. Although we try to publish every ad we receive, we can make no guarantees; publication is entirely dependent on space and time constraints. We may also publish free ads on the cover disc if magazine space is short. Please fill in your name and telephone number below: these will not be published, but they enable us to contact you in case of any queries.

Your name:.. Telephone no: ....

*info

Dave Lawrence and Dave Acton reveal the hidden gems of programming

Mill's mess

Author: Stuart Whitehouse

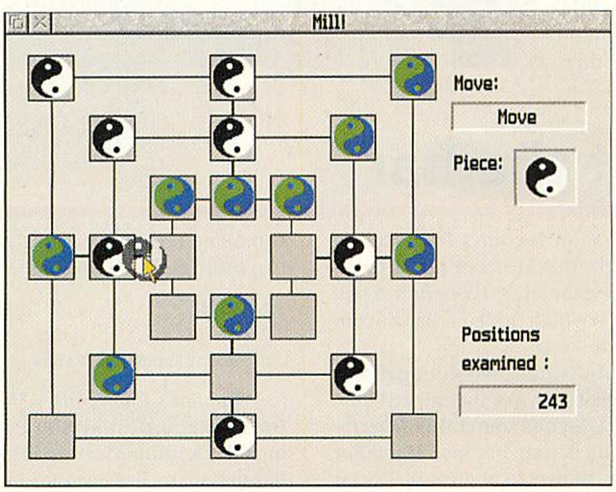
Our current running theme in *info seems to be for desktop games. The next classic board game to be dusted down and brought bang up-to-date is *Mill* from Stuart Whitehouse.

Mill is an ancient game, also called *Nine Men's Morris* and various other names. It is for two players and takes place on a special board of 24 squares linked by lines. The squares are arranged in three concentric boxes. Each player has nine pieces. In the first phase of the game the players take turns to place their pieces on the board. Once all have been placed, they then take turns to move their pieces around the board following the lines.

The purpose of the game is to form lines of three pieces of your own colour; these are called 'mills'. When you form a mill you can remove one of the opponent's pieces. The first player to be reduced to only two pieces loses the game.

In each player's first nine turns he places one of his pieces into any empty square on the board. If your piece completes a line of three you get to remove an opponent's piece immediately.

Once each player has played all nine pieces, a turn now consists of moving a piece already on the board. You can only move your own pieces, and the move must be a single stop along one of the black lines joining the squares. You must move into an empty square – only one piece is allowed on a square at once. If your move finishes a line of three you get to zap one of your opponent's pieces.



A mill is formed when you complete a line of three of your pieces. The line must be straight following the black lines on the board. There are 16 such lines available on the board – eight horizontal and eight vertical. When you form a mill you immediately get to remove one of the opponent's pieces. This is called pounding. You only get to pound when you form the mill – you do not get to remove a piece each turn that the mill exists. You are allowed to 'open' a mill by moving one of its pieces out of alignment, and then 'close' it again on the following turn. When the mill is reformed you can pound another enemy piece.

You can remove any enemy piece you choose, unless that piece is part of a current mill – any piece currently part of a line of three (following the connectors drawn on the board) cannot be removed except in the rather rare case that all your opponent's pieces are in mills

A player wins when the opponent has only two pieces remaining (not enough to form a mill). If a player cannot make any legal moves during the moving part of the game – if all of his pieces are blocked by enemy pieces – he immediately loses the game.

This is the official end game situation, but this version also implements a rule that if both players make 50 moves with no pieces being removed the game is declared a draw.

In the desktop version of *Mill*, click on a square to insert a piece, or to pound the piece on that square. Drag the icons around to move pieces.

Mill comes with a number of computer opponents, ranging from the easy to beat to the downright impossible. Any combination of human and computer players can be set from the options window. On the higher levels the computer looks much further ahead, and has no errors. The quality of the analysis also improves slightly at the better levels.

All the levels up to and including 'Good' will move quite quickly (i.e. less than 30 seconds and often less than one second) – the two best levels are somewhat slower. 'Diabolical' is very slow, and is only really recommended for ARM 6s or better. 'Advanced' is several times quicker than this, but may still need a couple of minutes to move when running on an ARM2 processor.

Straight from the horse's mouth

Author: Nick Craig-Wood

I hope Nick doesn't mind inferring that he may be equine in nature, but in response to our mini-challengette in the April issue, Mr Craig-Wood himself has supplied an enhancement to our Send-Basic-Output-To-An-Editor problem.

As you may remember the problem boiled down to how to get the redirection operators { and } to work in a satisfactory manner from a couple of cunningly defined macro commands. In the end we settled on adding the following lines to Director's *MenuMenu*:

```
SYS Option,"EditOutput"
   SYS Command, "Filer_Run Director:Utils.EdScrap|MRun "+
Path$+" <123> > |<Wimp$Scrap> <125>"
```

and creating the file *Director:Utils.EdScrap* containing the line:

```
DirectorEdit <Wimp$Scrap>
```

Nick's suggestion is that the program being run should be done so in a multitasking manner as befits a multitasking desktop, so he suggests the following:

```
SYS Option,"EditOutput"
   SYS Command,"/Director:Utils.EdScrap "+Path$
```

and creating Director:Utils.EdScrap as follows

```
   Run %0 { > <wimp$scrap> }
   DirectorEdit <Wimp$Scrap>
```

This file can either be an Obey or TaskObey file according to your taste.

Vibe's Vrids

Author: Jan Vibe

Not content with wringing our eyes, good old Jan now wants to wring our screens. The three *Vrid* programs all demonstrate sprite rotation in much the same way as his Chinese puzzle did last month.

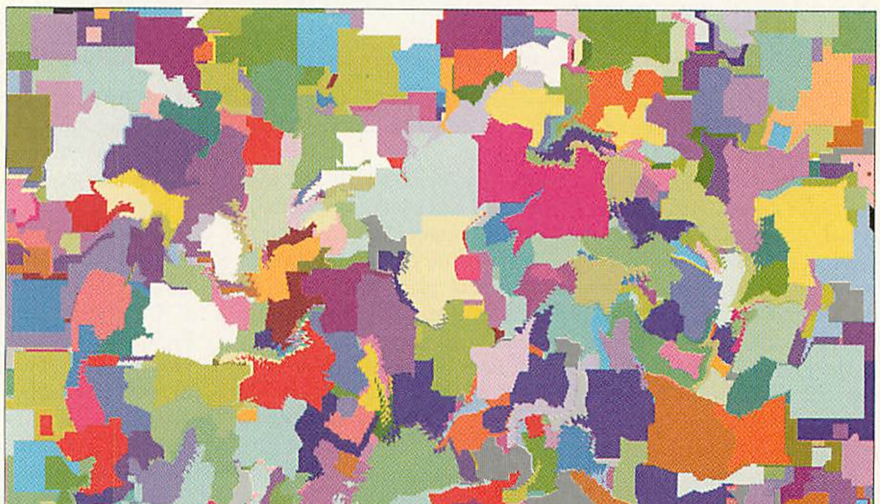
The plain boring unnumbered *Vrid* generates a screen of coloured squares and then rotates circular portions of it randomly. Because of its randomness, this can lead to a poor distribution of rotation on the screen, the program also goes on for ever...

The more interestingly named *Vrid2* gets round this problem by distributing the positions of the rotations to start, so they entirely cover the screen (well, as near enough as makes no odds). It then rotates each part twice to give the final, um, effect.

Finally, the aptly named *Vrid3* does exactly the same as *Vrid2*, but this time just rotates each part just once before moving on to the next. We're sure Jan wants us all to end up with permanent brain damage or at the very least a nasty twitch!

By way of a bonus, also from Jan is a little ditty entitled *Enlarge*. This is yet another of those completely impossible Vibe-isms which from looking at the paltry amount of BASIC code in it shouldn't do anything at all. Instead, it produces swirling waves of coloured splodges with just a dab of the mouse buttons. If you draw circles with the mouse and squint at the screen you can almost imagine you're looking at the spinning remains of an enemy plane...

Oh, and by the way, in case you were wondering, *Vrid* is Danish for 'wring'. Ahhh, it all starts to become clear.



Last orders at the bar

Author: Robert Hampton

Our second *Director*-related hint this month comes from Robert Hampton. The cunning thing is though, that it is not just a *Director* hint, it's also a *WimpBar* hint. Steve Smale's *WimpBar*, again from the April issue, was a small utility which added a bar of configurable buttons along the top of the desktop.

These could be programmed either to issue a star command or provide a drop-down menu of, well, whatever. We included *WimpBar* because it included these buttons, which is something *Director* can't do. What Robert has pointed out is that because *WimpBar* can issue star commands, *Director* can shown its menus via a star command (**DirectorShowMenu*). It is quite possible to combine the two utilities. By adding something like:

```
#ACTION
Paths
DirectorShowMenu Paths
```

to *WimpBar's Config* file. Clicking on the Paths button will fire up *Director* and display the Paths menu – very useful (until Nick includes a similar feature into *Director*, or Steve sends us the *WimpBar* update he has been promising us...)

Phase planes and automobiles

Author: Darren Green

Well, tell a lie, no automobiles actually – but phase planes aplenty. This latest graph-plotting utility from Darren Green draws 'phase plane' vector field diagrams. If you know what one of those is you will no doubt be jumping in delight by now at the prospect of being able to plot them on your very own monitor. If not, read on to find out what you've been missing all these years...

'You enter equations for dx/dt and dy/dt and the application will draw a graph showing how the magnitude and direction of [dx/dt,dy/dt] varies over the limits entered for the graph.

'Install *!PPlane* and click Select over the *PPlane* icon to bring up the main window, containing the graph. Clicking adjust over the *PPlane* icon will bring up the integrate window. This is also accessible from the menu.

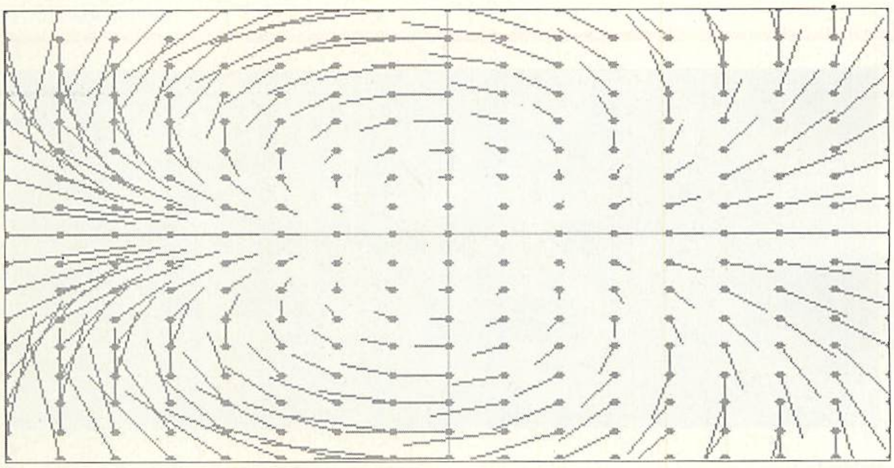
'In the control window you can enter the limits for the axes of your graph, and enter the equations for dx/dt and dy/dt. These should be entered as expressions containing x and y. You can also enter the number of points shown on the graph along each axis.

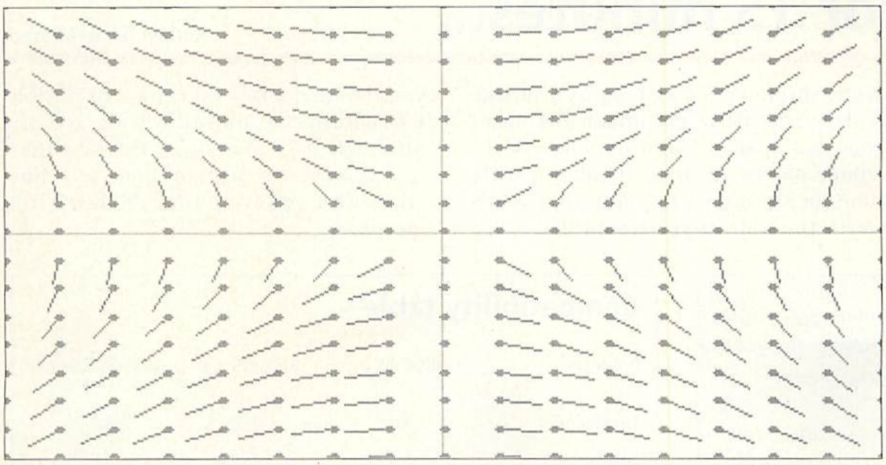
'Arrow scale determines the relative length of the vector arrows drawn from each point on the graph. If 'Set arrow lengths all the same' is selected, all the arrows on the graph are drawn as if |[dx/dt,dy/dt]|=1, i.e. have a length of 1. This means that the arrows then only show the direction of the vector, not the magnitude, but can lead to less confusing graphs. Click OK to draw a graph, or redraw the current graph. Try the following to demonstrate *PPlane*:

```
Scale x: -1 to 3, y: -1 to 3
dx/dt: x*y-x
dy/dt: y-x*y 2.
```

or:

```
Scale x: -10 to 10, y: -10 to 10
dx/dt: x*x-y*y
dy/dt: 2*x*y
```





'One of the most common problems encountered with this application is the error 'division by zero'. This generally occurs upon drawing a graph. Try adjusting your equations so that this does not occur, for example by adding on a small constant such as 1E-10, or adjust the graph scales.

'In the integrate window you can specify the co-ordinates of a point at which to start integrating, and a step value dt. Then click OK to carry out the operation. This involves repeatedly calculating dx/dt and dy/dt at this point, multiplying these values by the value of dt, and adding them on to the current x and y. This plots a curve over the graph, which is drawn when it is finished.

'Calculating this can take a very long time, or, if the path enters a loop or a stable node, forever. Pressing Escape ends the calculation and returns control to the user. If 'Stop when out of range' is selected, calculation will stop when the value of x or y exceeds the limits of the graph. Clicking on the main window with select also enters integrate mode.

'Integration begins at the point on the graph where the user clicks select, and uses the dt value in the dt icon on the integration window. If the integrate function is working strangely, it is possible that the values of dx/dt and dy/dt are large. Try reducing the value of dt. If the integrate function is working too slowly, try increasing the value of dt. Note the smaller the value of dt, the more accurate the plot, but the slower it is to calculate.

'The current main screen can be saved as a sprite file which contains a single sprite called 'Screen' with a default desktop palette. For additional instructions, use Interactive Help, which *PPlane* supports.'

Stripped-ease

Author: Nicholas Mar-

The stripping in this case is entirely wholesome entertainment involving nothing more than the shedding of a byte or two. **Strip* simply takes an input file, removes control and/or top-bit-set characters and places the result in another file. The syntax is:

```
*Strip <input file> <output file> [-ctrl] [-top]
```

Midi-kado

Author: Mr P F Jerome

Our now seemingly regular music spot takes a break from the techno and instead pays tribute to music of an earlier era.

Mr P F Jerome has converted three Gilbert and Sullivan tunes and presents them in Rhapsody and MIDI formats for your entertainment.

Scan-tastic!

Author: Justin Fletcher

Justin Fletcher is a name that has appeared more than once in these hallowed pages. You can now use his latest program – *!TextScan* – to count just how many times!

TextScan is a simple but very powerful file searching utility. Just provide a string to search for (including wildcards) and it will rummage through a given directory methodically reporting the location of the string in any of the files therein. *DDE* users will already be equipped with *Find* which performs a similar function.

To use, install *TextScan* and drag the directory to search on to the *TextScan* icon. Or just click on the icon and enter the pathname, like *ADFS::Connery.$* for example. Now enter the string, including the wildcards # and * as needed.

The application uses 'throwback' so make sure your throwback handler (e.g. *Zap*) is running and that its name is entered correctly in the icon provided. To start, click Scan and watch as all the matches found appear. Click on lines in the throwback window in the usual way to load and edit the files in which they feature.

The menu option Configure allows you to configure the initial state of the application and some of the features which are not settable by the main application. You will be presented with a simple text file that contains the following definitions and may be altered and re-saved:

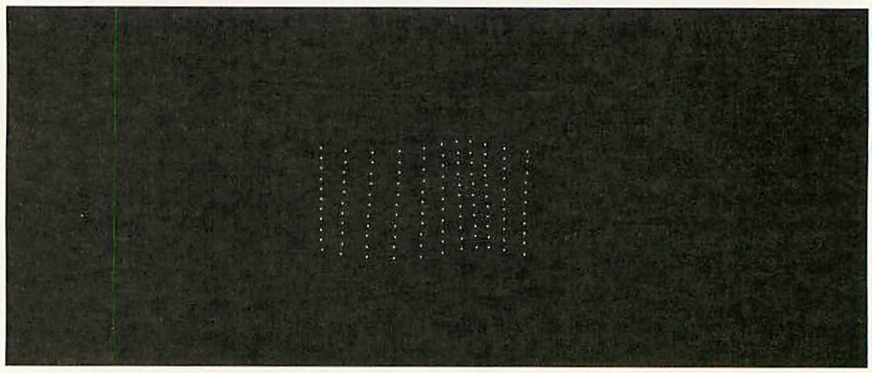
Program: Do not alter
Path: Path to fill in initially
Throwback: Application to use for throwback (or blank for broadcast messages)
Poll: Numeric value preceded by % giving the number of polls to execute whilst searching. Use +ve integers for a number of multitasks, -ve number to number of finds to do before executing that number of polls, or 0 to disable multitasking entirely.
ScanAll: Set to On if all file types would be scanned
ScanData: Set to On if data files should be scanned (useful for StrongHelp)
ScanObey: Set to On if Obey files should be scanned.

Trigger-nometry

Author: Alan Lowe

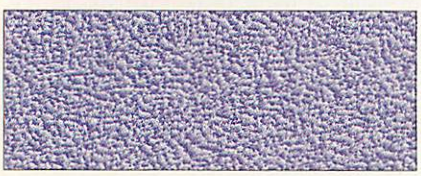
Well, if you can guess what this program does from its title you deserve a large prize. Sadly, we have no large prizes or even small ones, but we do have this little offering called *Trigger*.

Alan tells us it is a program that went a bit wrong. However, as it went wrong in a particularly nice way, he sent it in anyway. Move the mouse and the dotty arrangements will dance correspondingly, not quite in the manner intended, but entertainingly enough in any case. Any other examples of went-a-bit-wrongisms most welcome by the way.



...and shimmer for 15 minutes...

Author: Daniel Mossop



Well, shimmer for as long as you like really. This little graphical ditty uses good old mode 12, and no-nonsense 16 colour palette cycling. It takes a little time for the screen to build up, but it's worth the wait. If you would like to try your hand at a Risc PC enhanced version we would be delighted to see it, although it is sometimes the case that 'less is more', so perhaps mode 12 is just fine and dandy for shimmering purposes.

*QUIT

Send programs, hints, tips, musical offerings and whatever else you like to the usual address please:

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or, if your submission is **100K or less**, e-mail us (including your real address please) at: austarinfo@idg.co.uk

You needn't include a letter but **please put your name, address and program title on every disc** and include a text file containing your name, address, disc contents and program details. Saved screens, drawfiles, background information and the like are always useful and an SAE is appreciated.

Compatibility table

Program	RISC OS 2	RISC OS 3.1	RISC OS 3.5+
TextScanC	No	Yes	Yes
PPlane	No	Yes	Yes
Trigger	Yes	Yes	Yes
Shimmer	Yes	Yes	Yes
Enlarge	Yes	Yes	Yes
Vrid	No	Yes	Yes
Vrid2	No	Yes	Yes
Vrid3	No	Yes	Yes
Mill	No	Yes	Yes

Mike Cook develops an analogue PC joystick interface

The joy of

Back in the January issue of *Acorn User* I showed how you could interface a Sega joypad to our favourite computer. The Sega joypad has 12 buttons on it coming out of nine wires so there was some nifty footwork to be done. Also in October '95 I showed you how to connect a standard switched joystick to the printer port. Both circuits needed a bi-directional printer port or my bi-directional emulator from September '95.

The PC is the most numerous computer – I'll refrain from saying most popular because most of those who do have them don't like them much. As there are a lot of these computers about a wide variety of joysticks and joypads is available. Some have advanced features like automatic rapid fire and come in a wide range of styles, so I thought I would see how we could make use of them. This time I have come up with a design that will work directly on single direction printer ports as well as the more modern bi-directional ones.

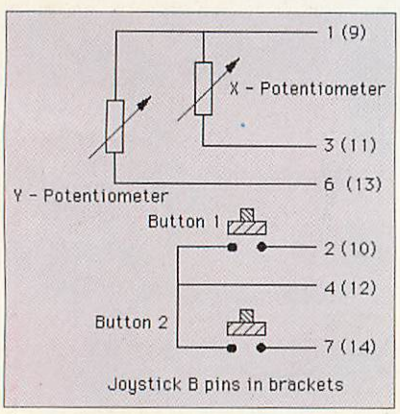


Figure I: A PC analogue joystick

Basically a PC joystick is an analogue device; even the joypads that appear to consist of all switches are in fact analogue devices. Now the first computer with an analogue joystick interface built in was the original model B, but this was not implemented in the same way as a PC joystick.

Figure I shows the wiring for a standard PC joystick connected to a 15-way DIN plug. In fact there is room for two joysticks in this standard and the pins for the second are shown in brackets. In practice most joysticks are wired up as joystick 'A' and splitter leads allow the connection to the second joystick. However, some pads, like the PC Power Pad, nick the fire buttons from the second joystick and give you four buttons and one direction pad.

The direction pad or joystick proper is quite simple and consists of two variable resistors or potentiometers, one for each axis. In the centre of travel the resistance between pin 1 and pin 3 or pin 6 is about 50K – this drops to 100R in one direction and rises to 100K in the other.

The joypads just use switches to make the resistance across these pins change in the same manner. To use these on a PC you need a Games Card adaptor which converts this resistance into a digital value. My interface is very much cheaper to make than one of these adaptors.

Now a computer can't measure resistance directly so we need to convert it into something it can handle. Normally, in an analogue to digital converter, this 'something' is voltage, but we still need some extra circuitry to read the voltage. What I am doing here is converting the resistance into a pulse – the higher the resistance the longer the pulse. All our computer has to do is to time the pulse to find out the value of the resistance.

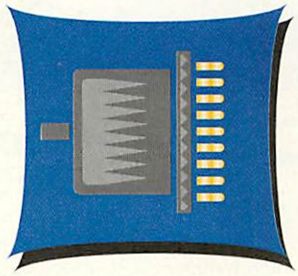
The heart of my circuit is a monostable – a digital circuit that will produce a pulse from an edge. The length of the pulse is determined by an external resistor and capacitor. All we have to do is to make the monostable's external resistor the resistor in the joystick. Figure II shows the circuit of my interface and it uses a 74LS123 which is a dual monostable – we need one for the X axis and one for the Y.

The output from each monostable is fed through a transistor connected together in a wired OR configuration or open collector. This means that the pulses from each monostable can be fed to the same printer port input. This is important for mono direction printer port users as you only have two inputs available. If you want, these two transistors could be replaced by a NOR gate, or a NAND gate if you used the inverse pulse from the monostable. However, that would mean using only one gate from a package that contains four and doubling the number of chips in the design.

It does not matter that the output pulses from the two monostables are merged because we are only going to measure one axis at a time. We do this by connecting the trigger to each monostable to different output pins on the printer port. The remaining status inputs are used to read the fire buttons.

Note here that mono direction printer port users will only be able to read one fire button connected to pin 10 where as bi-direction users will be able to read all four. Construction is not very critical and can be achieved on a small piece of veroboard. Note that you will need a 5v supply which you can either connect separately or tap off the inside of the computer. I bring 5v out to a connector on a panel of one of my podules.

Now the only thing Figure II does not show you is the value of the two capacitors on the monostable. As there are many different speeds of Acorn computers, this has to be adjusted on



games

test, which isn't as bad as it sounds. You will find that the same value of capacitor should serve for both axes.

Start off by using a 33nF capacitor for each monostable and run the JoyCal program on the cover disc. This works by triggering each monostable in turn and counting how long it is until the pulse stops.

The program keeps a record of the maximum and minimum values and works out the range – the difference between them. Move the joystick to both extremes to get the range for a particular capacitor. What you are aiming for is a range of 128 or as close above it as you can get. In fact, if all you are interested in is a joypad, any value above it will do. With a joystick, the closer you can get to 128 the more of the physical travel of the joystick will be useful.

To increase the range, increase the capacitance. The best way to do this is to solder another, smaller capacitor in parallel across the original one, as capacitors in parallel add up (in parallel just means across the terminals of the original). You can do this while it is still wired up and powered up but you will have to run the program again to get the maximum and minimum values of the new capacitor value. I found that adding a 10nF to the 33nF one gave me a range of about 158 on my Risc PC 600. With slower computers the capacitor value will have to be larger.

When you have the correct capacitor value, make a note of the value from each axis when it is at the central or rest position – you will need to put this value to other listings to produce the best results.

Now, the standard for joysticks on Acorn machines say that the values returned should be -64 at one extreme and +64 at the other. To process the raw numbers into that range we need an addition to our program. This is in the file called JoyComp – change lines 290 and 300 to reflect the mid-range values you got on your hardware.

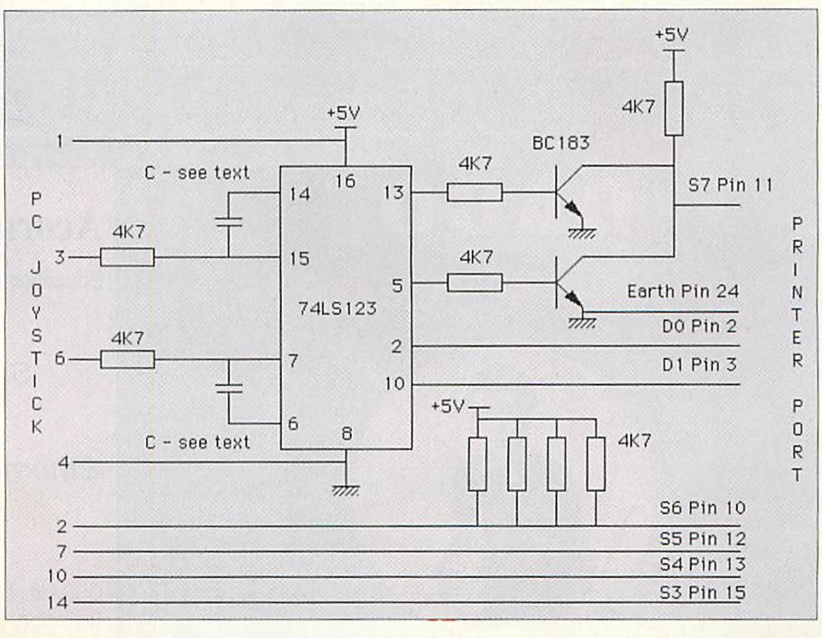
The best way to use a joystick is in a module, and the File JoySource will assemble a module with all the code in it. Again you will need to customise it for your circuit by changing lines 1070 and 1290. Lines 70 to 120 set up the function keys to save the module, set the file type and install it. You will have to edit these to reflect the path names on your disc.

Another place you might have to customise are lines 1410 and 1420. If these lines are deleted the Y reading is inverted. This can be necessary due to people's differing perception about what is up. On some games, like flight simulators, pulling the joystick towards you constitutes going up and pushing it away is for going down. Others would define up and down in exactly the opposite sense. While this might seem more logical it does not always feel right and so you have the choice when you create the module.

Finally the file JoyModTest is a simple program that draws a square in the position determined by the joystick and wipes it clean when you press the fire button. Notice that there is a bit of jitter on the reading – it can change rapidly between two numbers. This is normal for any analogue to digital converter and this type in particular. In fact the amount of jitter is much less than you get on a real PC.

I have been told of the existence of a module that will allow the PC card to read joysticks attached to the Acorn machine but unfortunately I have not managed to track it down. I am told it works with any joystick that supports the joystick SWI so if you come across this it should work with this interface and software. Happy joysticking – you should really be able to shoot 'em up now. AU

Figure II: The analogue joystick to printer port interface



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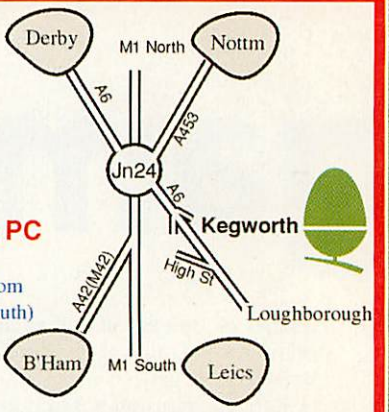
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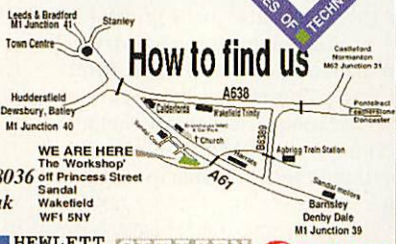
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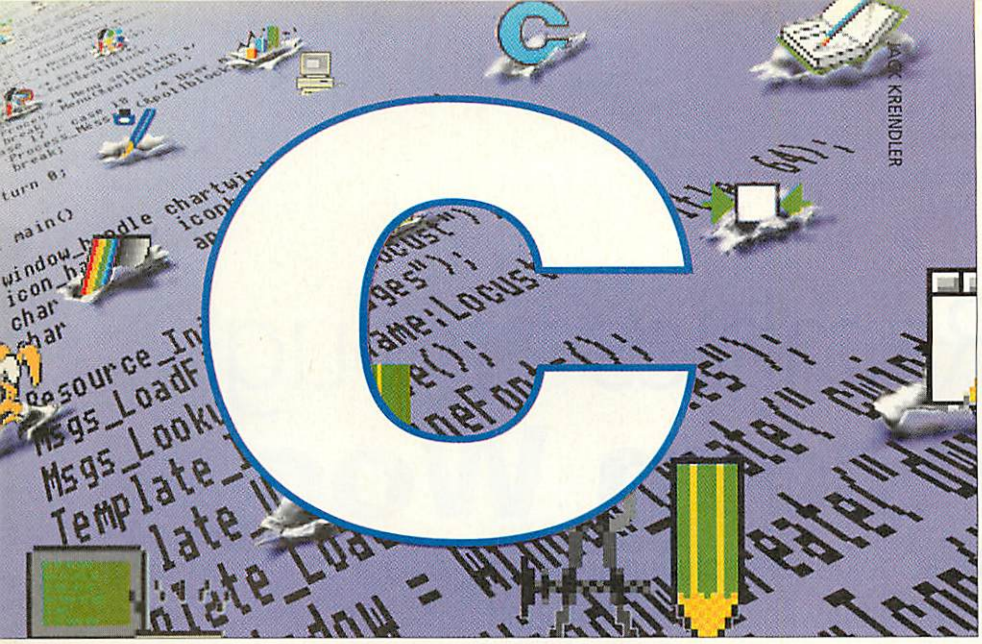
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C for yourself

Steve Mumford starts the process of building a WIMP library

Over the past few months, I've been presenting you with sections of C source code that would use kernel SWI calls to initialise a task on the Desktop. So far, the various routines that carry out the necessary jobs have been 'hard-wired' into the program – if I wanted to write another menu, I'd have to head to the reference manuals once more and recalculate all those flags. This isn't an ideal state of affairs, particularly if you do a lot of coding. One answer to this problem is to create a *library* of functions that you can link with your own source code when the application is compiled.

What are the benefits? The greatest advantage is that it hides the complexity of the data blocks and the SWI calls behind an interface that's hopefully easy to remember. Admittedly, while you're developing the library, the compilation gets a little trickier and it's worthwhile getting to grips with your compiler's *Make* utility to manage your project. However, once your library contains all the functions you require, all you need to do to give a program access to those routines is to **#include** a header file and link in your pre-compiled library object code. This month, I've been preparing a simple WIMP C library named *AULib* and converting the existing *!RunImage* file to make use of it.

The application I've presented on the cover disc has two extra components – the C source for *AULib*, stored in the C directory along with the main source code, and an *AULib* header file that contains various **#define** statements and structure definitions, as well as the prototyping information for the functions held in the library. At present, it's still fairly basic in its functionality, but the *!RunImage* file is already much simpler than it was – I'll run through a few of the features provided below.

Firstly, *AULib* defines a function to initialise a task on the desktop – it takes the required RISC OS version number multiplied by 100 as its first parameter, along with a pointer to the application name and a pointer to the list of messages that you wish the WIMP to pass on to you. On its return, it gives you your application's task handle, which you should store away for reference later. In use, it looks something like this:

```
#define VERSION_NUMBER 310
int task_handle;
char appname[] = "My Application";
long int msglist[1] = {0};
task_handle =
au_initialise(VERSION_NUMBER, appname,
msglist);
```

Although it's possible to call **au_initialise** with an application name in quotes, such as:

```
task_handle = au_initialise(310, "Another
application", msglist);
```

this can cause confusion later as you'll probably want to provide the same application name for use in error boxes and the like. So it makes sense to store it in a globally accessible variable.

The use of **#define** to create a list of constants in the header file allows mnemonics to be created that make the flags necessary for a lot of SWI calls much easier to remember – I've made use of them to manage creation of icons and menus. Here's an example, in which individual flags are merged into one integer by using the bitwise OR operator:

```
ibar_icon_handle =
au_create_iconbar_icon(IBAR_PRIOR_APP,
IBAR_ONRIGHT, ICON_ISSPRITE | ICON_HCENTRE
| ICON_VCENTRE | ICON_CLICKNOTIFIESONCE,
"!newwimpc");
```

This might look like a bit of a mouthful at first, but once you've become familiar with the various tokens, it's much easier to edit the icon's behaviour. This function takes four parameters:

- A priority flag used for determining the precise position of the new iconbar icon (**IBAR_PRIOR_APP** is defined to be zero, the priority of a standard application)
- A flag indicating which side of the icon bar the icon should be placed
- An integer containing various flags that control the icon's attributes
- The name of the sprite to use – in this case, the sprite was loaded automatically from the *!Sprites* file when the application was booted.

Finally, it returns a handle to the new icon.

That's all I've got space for this month, but next time I'll explain the other functions used in the cover disc example, including the improved menu creation routine. You might like to compare this month's *!RunImage* file to the one presented last issue; hopefully, it should be somewhat easier to follow. See you next time. AU

Rambles through Acorn Wood

Mike Cook offers solutions to your problems, finishing off with a quick-fire round

Musing on the merging of the sales talents of Acorn and Apple I have been wondering who the junior partner is here. True, Apple is much the larger company but in the UK, in terms of sales, Acorn is the larger. I have written some Apple software for a well known company who has the same titles on many platforms. Just looking at my royalty statement for two months one title has sales of Mac 11, Amiga 19, Acorn 54, PC 162. Other titles have similar ratios. You will see that Acorn out-sells the Mac five to one where as the PC outsells Acorn only three to one. If you compare Mac and PC you will see sales of nearly 15 to 1. Clearly Acorn is not a junior partner.

I have been delving into the PC world this month looking to interface a PC card to the Acorn. Those of you who have never dealt with PC people be very grateful, it is totally impossible to get to talk to anyone who actually knows anything. The companies are protected by an answerphone system that makes your average adventure game look tame. When you finally get to press the button to put you through to technical support it tells you that all the lines are engaged try again later. I did once get through by accident and the startled voice on the other end pretended to be the answerphone system and hung up – a sharp contrast to the normal friendly Acorn voices. In the end I gave up trying to get information from them and hacked at the software – the code was appallingly written making multiple unnecessary writes to the card. Anyway look out for that project in a few months.

I have been hit with a sudden flurry of requests concerning 8-bit Acorn computers this month. The problem is that I no longer have my 8-bit system running. It was part of the bargain with my wife: I was allowed to get a Risc PC provided I got rid of an existing computer. Still it seems that there is a revival in interest in archaeological computing but unfortunately we can't devote the space to it here.

I have finally got my university to supply a sensible alias for a Web site, so instead of quoting the IP address as I have done previously it can be found on http://physics.mmu.ac.uk/Physics/Acorn/ Please note, the upper case in the last two words of the address do matter.

OK let's get on with the letters. First off is Andrew Tuson, who has a bit of disagreement with one of my replies.

I have to disagree with your reply to Mr. I J Cleaver in your Q&A answers in the April 1996 issue of *Acorn User*, and IDE interface makers might disagree too. I have used an NCS IDE interface (with a Syquest 105Mb and Segate 1Gb drive) in a Risc PC 600 and 700 with no problems at all. Furthermore, a second slice is a far neater solution than having external devices piled round the machine.

Remember, I am writing my own personal advice and I am more than willing to defer to anyone with counter experience. This column is for general discussion rather than my definitive pronouncements. However, I am not sure what Andrew is disagreeing with here.

The fact that you have had no problem with software recognising the second IDE system doesn't mean that the person who told me he was, is not telling the truth. Secondly, I was asked if a second slice was needed, not was it desirable. Certainly a second slice is a much neater solution, but you are paying money for neatness. You might also save some money too, as internally fitted SCSI devices are often cheaper than external devices. So all in all I stand by my original advice, but please feel free to disagree.

One of the advantages of using Email is that I can get a response to my advice and often a supplementary question ensues. One of the problems of the traditional approach is that I seldom know if my advice has been useful or whether I got hold of the wrong end of the stick.

Jim Belsey whizzed this poser over the net this month:

Over a year ago now I watched a documentary on Channel 4. In it there was a strange instrument called a tremolone (almost certainly spelt wrong). It was played, as far as I can make out, by disturbing, with one's hands, the magnetic field it generated. From this disturbance the position of the hand was determined and hence a sound produced. Is this all a big con? Are Channel 4 pulling my Pilsner?

In addition I read in your WWW pages that you did an article on a touch screen. Now wouldn't it be snazzy if (and this relies on the integrity of my previous information) you could combine the two. You could determine the position of someone's hand when it was not touching the screen by digitising the sound from the instrument and you could determine the touches from the standard touch screen. In this way you could have a pointer that followed your hand around the screen as a mouse follows your hand around the mouse mat. Also it may make drag and drop easier to do with a touch screen as the location of the hand is better known. Is this possible or is the threma-thingy a wind up?

No there really is such a device. As far as I can see it works on the same principal as metal detectors. These can detect any conducting substance and as the human body is mainly a splodge of water, it can detect that too. I did work on such devices many years ago just after I left school – they were for detecting metal contamination in food products. The limiting metal particle size was determined by what we called the 'product effect', which was mainly due to the water content.

Using this effect as a pointer is a nice thought but I don't think it would work. The problem here is that the shadow mask in the CRT of the monitor would distort the magnetic field and you would lose any positional information. I did do something similar with ultrasonics in one of the last Body Builds but again the presence of the physical screen would prevent your idea from working.

What about on a portable? Does an LCD screen have magnetic fields? Could this be of use to the NewsPad development team:

Yes sorry. Anything that conducts electricity will greatly disturb magnetic fields. Anyway you really don't have the resolution or repeatability to make it work properly.

Also I have a question that has bothered me for some time now. What happened to Microlink? Since I was still in Sinclair-labelled nappies at the time of all this I haven't a clue but I would sure like to be able to get my hands on (and I quote) 'just one of the hundreds of programs downloadable from Microlink'. If you could help me with this I would be extremely grateful.

As to Microlink, it closed down many years ago when subscriptions to it dropped dramatically. What happened to all those programs is something I don't know. However, you could try the national micros archive at Hensa, on the net. It has old 8-bit Acorn stuff on it.

Ian Jackson has been plagued by a strange fault, he writes:

My friend has the following problem with his Risc PC 600. On booting up, everything works fine until the desktop screen first appears and then he gets the following message: 'Not enough stack to call filing system'. Once cleared, his machine boots up OK and there seems to be no adverse effects. We have tried increasing System size but to no avail. This problem started after the power supply to his computer was disconnected for a second or so by his son knocking the mains adapter. Could you please let me know any suggestions you may have as to a remedy.

First of all I would try reinitialising all the modules. If that fails this sounds like a fault in the operating system software. Given the history it might be that a small amount of damage was done to the hard disc in an area where one of the disc-based support packages is located – the !Boot folder. I suspect what you need to do is reformat the hard disc and restore the !Boot folder, not from his disc but from another machine. I know this could be tricky without the correct hardware.

I don't always know the answer to readers questions so I am thankful to Dave Walker from Acorn Support for his help. Recently I wrote to him to ask:

I have an *Acorn User* reader who says that the A3020 does not have a backplane connector for podules and hence he can't find the IIC interface wires. Is this correct or is he missing something?

'One quick shufty at the circuit diagrams and it looks like your reader has a point – at least in that the diagrams aren't too clear!

'Looking at the signal assignments around the PCF8583 RTC, C<1> appears to be assigned to the IIC clock Scl, and C<0> to the IIC data line Sda. ARM250 has to have an IIC brought out of it, otherwise it couldn't talk to the '8583; identically named, and very likely-looking, signals are assigned to SK7 pin 1 (C<0>) and pin 2 (C<1>), so my bet is that these are the lines your reader is after (even though the diagram shows no other association between these lines and the RTC).'

David Robertson sent me this:

I was searching the net for Maplin, either a web site or a phone number – but to no avail. One of my engineers was looking for a small IC that allows you to record several seconds of speech and then play

We have a Maplins next door to the University. At present there is no web site but they say they are working on it. You can Email the Manchester Oxford Rd. branch on maplin@body.demon.co.uk.

The device you are looking for is called a UM5100 – its Maplin order code is UJ48C. It will record 9 to 26 sec and costs about £5.

Mail continues to come in the traditional way, Ken Ross writes:

I am the owner of a Risc PC, which has fitted a dual speed Sony CD-ROM drive. Looking through the computer press I have noticed the recent decline in the prices of CD-ROM Drives in the PC world. As I am finding my dual speed drive is a bit slow, I would now like to upgrade to a quad or even six speed drive and take advantage of the very low drive prices available at the moment. Would any old ATAPI/IDE drive work, or just a select few, and with the new drive fitted would it be 100 per cent compatible with CDFS, the PC Card and applications such as !CDPlayer?

Well, this is a tricky one. The IDE specification is quite loose and some drives will work and some won't. It is likely that when a drive works, all the associated software will work as well. We really need more information from readers about this – can anyone out there help? Have you tried this and were you successful? Be warned, however, that while a quad drive is twice as fast as a dual speed you won't always notice such an improvement. This is because there are other factors that act as a bottleneck. Have others found this to be so?

Now Garry Taylor has a host of questions:

As a newcomer to the Acorn platform there are still a few things that confuse me as your magazine seems to cater for experts rather than the beginners (which is actually quite welcome as I used to buy Amiga magazines which were always trying to tell me what a hard disc was). I realise that there is a lot to answer but I have a lot of questions. First what is TAOS?

A multiprocessor operating system. A machine equipped with this could effectively multitask with a processor per task. It is still in the development phase but is nearing completion.

How fast a modem is required to go on BBSs?

Any speed will do, most BBSs are text only systems so you spend most of your connect time reading the screen. Speed becomes important for downloading – if you have a slow modem you have to watch what you download.

Can I use a Parallel ZIP drive – if so what driver will I need?

In theory you can use one but I don't know of anyone who has written a driver for it. Anyone know different?

Can !DRAW and !PAINT support a scanner?

No, not directly but any scanner driver should be able to save directly into these packages.

When I play sound modules using .!Configure some run too fast and some too slow. What can I do?

No idea. I have the same trouble running tracker files on the RISC PC 600. Anyone got a sound utility that really works?

Why aren't there any Mac emulators or cards when there are loads of PC cards? At least the Mac approaches the standard of the Acorn. I have found that my A3010 with 1Mb runs faster than my college's P75s with 16Mb!

Yes, well speed and memory capacity are not related so there is no surprise here. The reason that there are no Mac emulators is that Apple holds copyright on the Mac OS and tends to sue the pants off any who tries that sort of thing. Now that Acorn in theory has a license to it we could see one but I doubt it. It is simply not worth it as Macs are quite cheap now.

Where can I buy classic BBC games such as Thrust on 3.5 disks to run on HOST.

No idea, I told you there was a BBC revival about!

Is StrongARM as fast as PowerPC?

We won't really know until they are out, but they look like they will be.

The hard disc interfaces that come with a User Port and expansion slots – will the BBC stuff work on the user port i.e. the beastie, and what cards will fit in the expansion slots?

No, nothing will work directly from these User Ports as they are addressed differently from the BBC. However, one version of HOST will make a stab at direct access – it's a hit and miss affair. You will have to ask the manufacturers about the expansion slots.

A suggestion – rather than have a PC column which, let's face it is a bit hypocritical considering that we Acorn users are supposed to hate the PC (your magazine is always saying how slow and inefficient it is, which is of course, true). Why not have a section in which readers can send in articles on their favourite utility or game or maybe just say why they chose the Acorn in preference to other formats?

You don't have to hate PC to love Acorn (but it helps). The magazine is always open for readers to send in any material for publication and there is always the readers' letters page. AU

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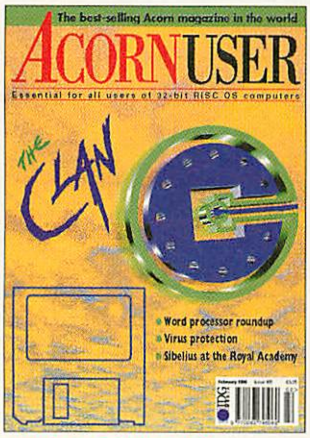
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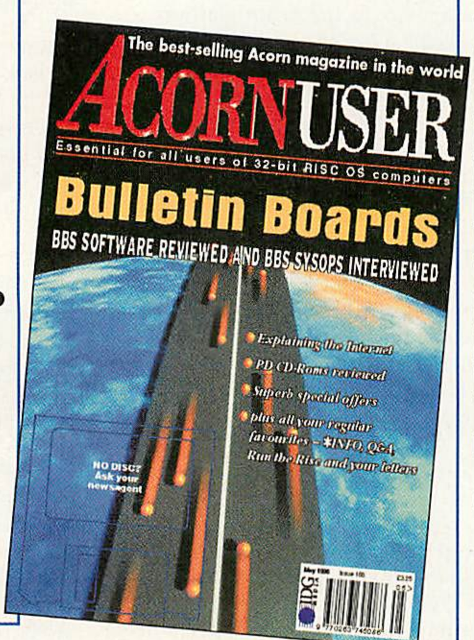
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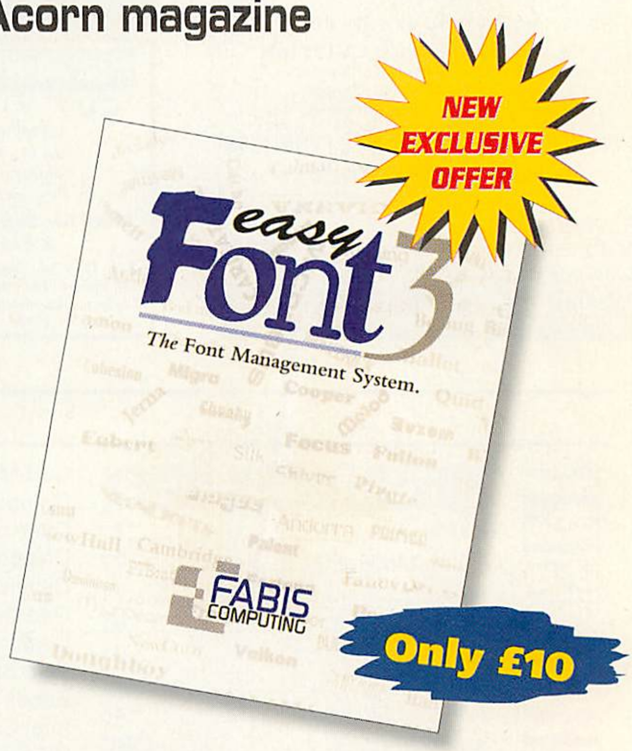
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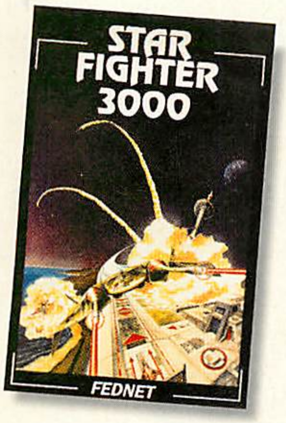
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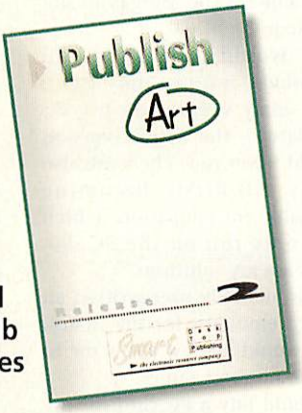


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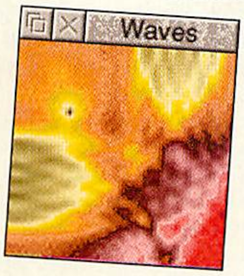


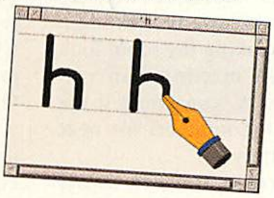
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Letters



Proper decimal points

The excellent article by Clive Semmens in the April '96 issue of *Acorn User* on accents and other symbols reminded me how many useful characters are tucked away in a fully-implemented Latin 1 Acorn alphabet.

Now that the DTP world has found proper quotes, as distinct from sexless ones, is it not time that the proper decimal point was revived? It's there in the Latin 1 alphabet – character 183 (not to be confused with the thicker bullet point at character 143).

I wonder how many readers have forgotten about, or even knew of, the existence of this useful character – we have been living in a decimalised country for 25 years.

The demise of this character can probably be attributed to the limitations of mechanical typewriters, though I had one which had both a decimal point as well as a raised point – level with the top of the ascenders. Can anyone tell me what that was for?

So how about encouraging the use of the proper decimal point by using it in the text and advertisement pages of *Acorn User*. Perhaps authors of DTP packages, word-processors, databases and spreadsheets could be persuaded to ensure that decimal tabs work with both decimal points and full stops.

D A Cox, Reading

Apple and Acorn merger

As I read through your news section in the April edition I thought of the many people overjoyed that Acorn would stand a chance in the market now it has teamed up with Apple. Unfortunately I am more saddened by the merger.

I was going to purchase a Risc PC but am not too sure if I should get one now because the press release stated that the Acorn computers we know and love will only carry on until demand dies. How long will demand last if programmers are moved to Mac OS?

Also, the fact that the new computers are going to use Mac OS sends shivers down my spine. Why use Mac OS? What's wrong with RISC OS? I don't want to see a radical change in operating system. It took me about two years to get to know the ins and outs of the desktop and all my programs including PD will be useless with the new OS.

I suppose one advantage is that we don't have to use Windows but will this new company last?

Nathan Atkinson, Teesside

An important point to remember is that the new company, Xemplar, is really irrelevant to the further development of RISC OS, beyond being a market for new machines.

Temptation

I am in a quandary. I have been an Acorn enthusiast since I built my Acorn Atom, more years ago than I care to think. I have progressed through BBC B, A3000, and am now the proud owner of an A5000, expanded with extra memory, extra hard drive, and MIDI interface. The problem is I have started casting covetous eyes towards other people's computers. I even occasionally glance at my father's Amiga.

Why am I tempted towards this unfaithfulness? I have always felt that the Acorn is a far superior machine, and I still do.

Rhapsody is by far the best music package I have seen for the price, and compares favourably with packages used by semi-professional musicians on the PC. Linked to a Yamaha keyboard I can produce excellent accompaniments.

My pupils at school find the Acorn system very easy to use, and are going to have a nasty shock when they leave school, and have to get to grips with DOS or Windows.

Despite my satisfaction with Acorn there are still things I cannot do. My father's Amiga will run the game *Civilisation*. If it has been converted for the Amiga, why has it never been converted for the Acorn? There are many good games that are available for the Amiga but not the Acorn.

I would like to run *Autoroute*, but can only run a very early version on my PC emulator – the newest version would never run. There are also many CD-ROMs becoming available for education, which will only run on the PC. So, what are my solutions?

Has anybody ever written an Amiga emulator for the Acorn, that would at least allow me to run some good games.

- I could buy a PC card for my A5000. The problem is I would then need a SCSI interface, CD-ROM drive, and probably a sound card. This seems to work out almost as expensive as my next option.
- Buy a Pentium based PC with CD-ROM. In some of the discount stores this can be obtained for about £1,000. The problem with this solution, apart from the cost, is domestic harmony. One computer with monitor and keyboard is acceptable. Two would take up rather a disproportionate amount of the house.
- Buy a Risc PC with PC card. You must be joking, I am a main professional grade teacher, and we need to pay the mortgage and eat!
- Give up all my ideas about running better games software and PC CD-ROMs.

There must be somebody out there who knows the answer, without resorting to robbing a bank, or making my room look like NASA mission control. Alternatively, can you tell me the winning numbers for next week's lottery.

P F Jerome, Havant, Hants

There is a final option which is not entirely outside the bounds of possibility: With the development of the Oracle NetComputer (and other A7000-based products) it may become worth the while of other companies to develop RISC OS compatible software. I don't know if this will happen but it's worth waiting to find out.

Bare boards please

I own a Risc PC 600 early series and recently had to install a sound card. First I was afraid of opening my computer, yet I have to confess that it was a dream and I enjoyed unplugging and plugging all the cards inside. But it doesn't have RISC OS 3.6 and I can't fit an ATAPI CD drive.

In an article about StrongARM (*Acorn User*, April 1996) it is said: 'Risc PCs have a bus that is too slow to take full advantage of the chip's phenomenal processing power. Having now examined the technical details of the StrongARM, we will need changes in RISC OS and motherboards,..'. So what will happen when StrongARM is really available?

Think about all those people who can't afford to upgrade to a new Risc PC every time a new one is released. What they will do is buy PCs because it will be cheaper than buying new Risc PCs. For example, for a school it is no use changing monitors, HDs, floppies, memory or ARM processors every time the Risc PC architecture is upgraded.

So if Acorn wants to prevent its customers from moving to PCs, help them to protect their investment and let them buy bare motherboards separately. Moreover motherboards with RISC OS ROM and its multi-processor capability and ARM processors cards are, I think, the core of Acorn value added in a Risc PC.

Acorn should continue to sell

complete systems for first-time RISC OS users or people who do not want to bother but at the same time should sell separately all the parts of Risc PC as it does now with PC cards, ARM610/710 processor cards, (sometimes) RISC OS ROM, second slices, VRAM, RAM and so on.

As a statistician I have learnt that one of the most important mottoes in marketing is: 'It is always cheaper to keep an old customer than to get a new one.'

I know that Acorn hasn't got a lot of money to spend on marketing but it should wonder what is more useful, an expensive ad in a non-Acorn magazine or a satisfied customer who has become an Acorn enthusiast (as I am now) and who demonstrates to friends that his/her Risc PC is better than their PCs.

And in fact I don't think it will cost Acorn a lot of money to sell bare motherboards and maybe Acorn will make a little money.

Moreover it may be easier to make someone spend £400 every year for a computer than £1,200 every three years and be afraid of being left behind because of new technologies although it is the same amount of money. The more up-to-date Acorn computers are in use in the world, the more Acorn will sell its new value-added technologies such as StrongARM, new RISC OS (I hope) and so on.

I think other people will find more arguments in favour of making Acorn sell bare motherboards.

So please let me upgrade to a new motherboard and keep everything else: monitor, HD, floppy, ARM610 card, memory - even if I plan to make other upgrades. It would be a huge step forward in terms of upgradability and it will really protect my investment.

Christophe Pouet, France

Programming on Acorn

I bought my RISC PC 600 almost 12 months ago for one piece of software – the ubiquitous *Sibelius 7* – and was happy to console myself with the thought that at least I could buy a PC card in due course. Having discovered quality software at silly prices, and the generally impressive 'less is more' feel to both the hardware and the OS, the PC card idea soon vanished!

Now, having got to grips with the machine somewhat, I am beginning to consider transferring some of the more mundane MIDI-associated tasks still entrusted to my pair of venerable Atari STs. I was spoilt on the ST by having an excellent compilable BASIC (I have no other programming languages under my belt), and wrote quite an amount of fairly modest routines to satisfy my obscurer composition-related ideas.

So, to the crunch. Am I likely to be able to get to MIDI effectively from BASIC VI, or do I finally need to get to grips with C, or even (horror of horrors) machine code?

Could you point me in the direction of a couple of decent publications that will give me some of the flavour of programming the mighty Acorn, ideally aimed at intermediate/ advanced 'defectors' rather than complete beginners?

Jonathon Nowell, Lincoln

Well we don't think you'll have to go as far as ARM code, although it's not quite as horrendous as you might think. Using BASIC is a real possibility though, and compilers are available.

Compatibility

I've noted there is a ongoing debate in the magazine for compatibility and I would like to add to it.

I think Acorn has it just right with the Archimedes and Risc PC. Take my setup for example. I have an A3010 with the obligatory hard disc and 4Mb of RAM. I am only a student at the moment so I cannot afford to 'get connected' to the internet. (I do not have a phoneline anyway.)

Thankfully at college they are connected but only use PCs. As Acorn computers read and write to DOS floppies I have managed to fill up my hard disc with useful (and otherwise!) software.

I also transfer text, CSV, DXF, and PostScript files quite happily between the two systems. I don't see any point having a PC as I would not be able to afford the software. I would of course have access to lots of pirate software (as some of my friends do) but as a (simple!) programmer I appreciate the time and effort that is put into software and would not stoop to this anyway.

I bought Impression Style when it first came out mainly because it had an equation editor bundled with it. If I remember rightly it cost something very silly such as 70-80 pounds (if you sent in the master disc of your old word processor). It's probably the best purchase I ever made – pity it's not still being developed.

This year, noting that a spreadsheet would be very useful I bought TableCalc. This is a little rough around the edges but was well worth the 20 pound note I handed over for it.

Unfortunately it has no graphics capability but this was quickly sorted when surfing the internet one day.

Looking at some pages from "MICROS.HENSA" I found a nice little program called GraphDraw by C.A.Johnson. It was actually older than my computer (which I got not long after the A3010 came out) but ran without a single bug.

I sent off my registration fee of a huge £3 and Mr Johnson sent me a disc with all his applications in the return post.

So I now have a system which is very adequate for report writing, data analysis, and calculations which my degree couse demands and for very little money.

By comparison a friend of mine purchased a Dan 486SX (25Mz, 4MB, 100MB Hard disc) which set him back about £1,200 about the same time as I purchased my A3010.

His computer is of course obsolete now and he has upgraded to a nice new (hot) Pentium. I think it has roughly cost me the same amount of cash including purchase price and upgrades to keep my computer useable and I think its probably good for a few more years yet. (Unless you have any spare redundant Risc PC 700s kicking around the office you would like to give me...)

The only gripe I have about Acorn is the lack of dealers.

When I purchased a Canon inkjet from CC Ltd I found out I needed a more up to date !Printers than version 0.33 (sounds dodgy!) Thank God for the Internet! I got a copy of V1.52 three days after it came out straight from the Acorn .co.uk pages!

If there were more dealers it would be only matter of trotting down to your local high street but I would have to make a 20 mile trip to a different county!

Oh for the good old days when I got the computer from a mystified salesman at Dixons...

It would also be a shame if we lost RISC OS in the future. I continually wow friends who own PC's with things we take for granted such as solid window drags and filer windows (which MS I believe has just ripped off for Windows)

I can imagine in a few years when some secretary in an office has just lost all her work when Windows 2000 crashes (again) saying something like:

'Whatever happened to those nice, fast friendly computers I used to play around with at school? I wish I had one of those.'

Just one last comment (my fingers are getting tired).

The RISC OS I do have is slightly different from the norm. Thanks for !NewerLook which I use the sprites from (the application itself has too many bugs in). I also have BlackHole permanently on the icon bar (straight from the Internet), Timeless (another Fat German production) and the nicest application of all: DeskSpace.

This is brilliant – I would actually pay for this program and is a lot cheaper than a 20 inch monitor.

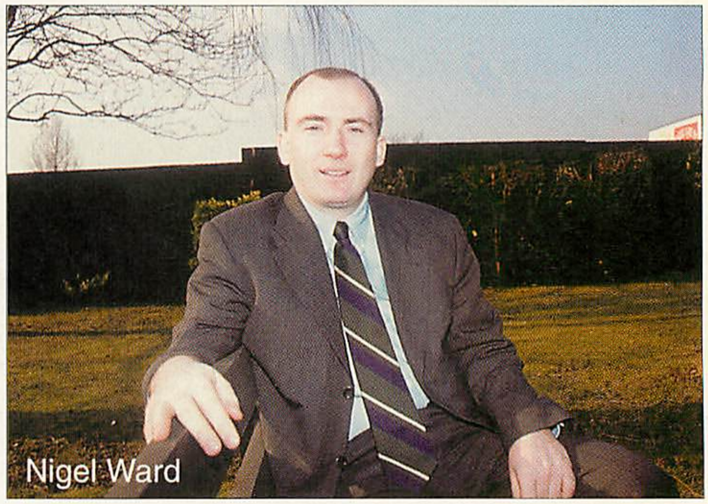
You simply specify how many rooms (screens to me) you want to have and when you move the mouse off the screen it goes onto the next blank one.

You just have to distribute that jewel of a program on the coverdisc.

I think you may gather from this letter I am more than happy with this computer!

Roger Swaine
k922772@kingston.ac.uk

The Regan files



> To make a business really fly you have to build it, and to get it moving you have to know it and the people in it. You have to smell the business, you have to understand it

'I come from Mattel ... well actually a small company they bought in leverage' – Rex in Toy Story.

Leverage is a complicated business buzz-word, which basically means that a company will buy another company, but allow it to run itself pretty much independently. The parent company gets the advantages of the resources and contacts of the other, without swamping whatever was successful in the smaller company in the first place.

Leeds is home to many things: Leeds United, Tetley bitter, the market where Marks and Spencers had its original Penny Bazaar and Yorkshire Television. It is the last which is home to one of the biggest educational software companies in the Acorn market: Yorkshire International Thomson Multimedia (YITM). Nigel Ward is its managing director.

'There is a little joke here, that the company would have been called just YTM except that the previous MD was a Geordie,' laughs Nigel. 'The company is a joint venture between Yorkshire Television and International Thomson, whose aim is to produce products for the education market irrespective of the platform. Yorkshire Television makes the TV programmes and the resultant videos, and Thomson is very strong in books'.

YITM also now owns SEMERC, a leading supplier for special needs education in the UK. Nigel explains that it is the potential re-use created by having all these companies which will make YITM successful. Exploiting the opportunities is how to turn a business into a "world leader".

'Say for example that you run a multimedia company. You could have a TV company and a book company as your parent companies, in which case whenever the TV company makes a TV programme or the book company publishes a book, there's an opportunity for you to make a CD-ROM and in doing so extend the brand name.'

There are economies in production because the companies are not in competition for rights. When a CD-ROM is marketed and sold, YITM is selling to a market already identified from sales of their books.

For YITM the theory is starting to work; it was only started last year and the growth so far has been pretty phenomenal. A budgeted loss has become an actual profit, and turnover is well up on predictions. Not bad going for Nigel, the local lad from Doncaster.

'I went through the local comprehensive system which had just been set up by the Socialist Republic of South Yorkshire. From there I went on to read Business Studies, because both my parents worked it was very difficult for me to justify being supported by them if I wanted to do a History or English degree (although they would have done so).

'I was not afraid of becoming a shift worker but my father was afraid for me. He drummed this into me from an early age: "Do what you want so long as you do not have to do what I do in life." When I finished my degree I could not get a job so I went to London and lived in B&B. On reflection it was quite an entrepreneurial thing to do, as I had not really been outside Yorkshire very much.'

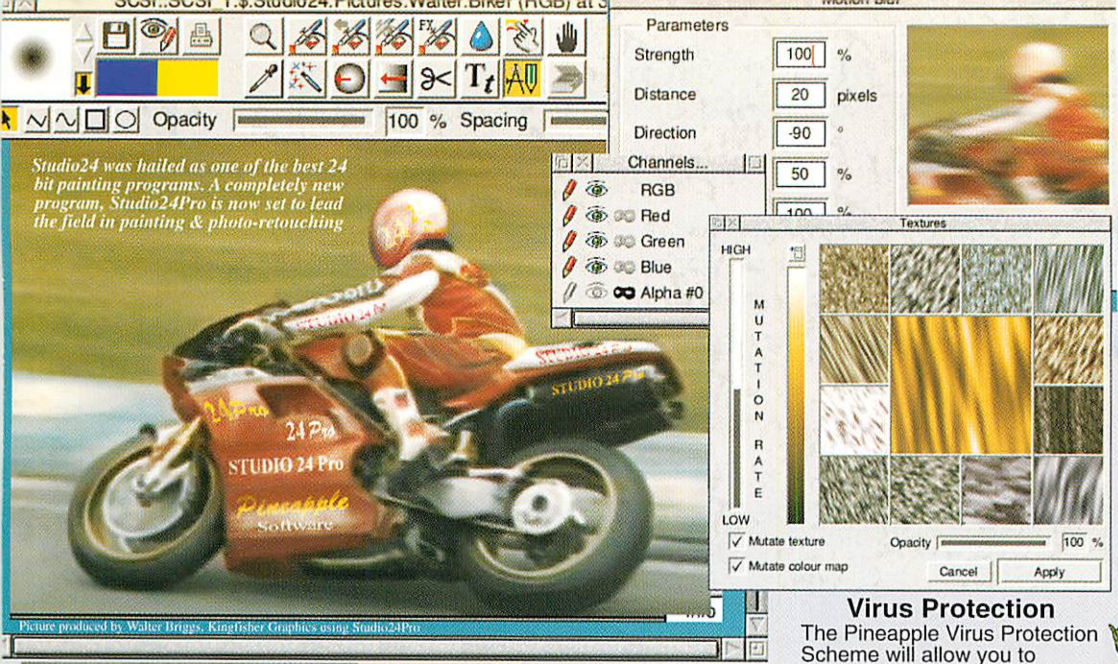
For someone working in such a large organisation, Nigel has a refreshingly hands-on approach: 'I mustn't lose touch with the business, even though it is fairly easy to get caught up in the corporate structures. To make a business really fly you have to build it, and to get it moving you have to know it and you have to know the people in it. You have to smell the business, you have to understand it.

'It is the basic argument: do you manage a business or do you run a business, and I say I *run* a business; I don't just look at the figures every month.'

Where does Nigel see YITM's future? The company is, after all, firmly multi-platform. Is there a temptation to move increasingly towards the PC side?

'We're staying with Acorn. It is a good platform and if we get this leverage right – and we will – there is no reason why we should not produce Acorn versions of everything. The better the structure of the business, the more opportunities to re-use content, and the more cost-effective you can make any other platform. We personally will grow in the UK to build depth for greater leverage, but we have a lot of expansion to do overseas, to take our products to the rest of the English-speaking world.'

Jill Regan AU

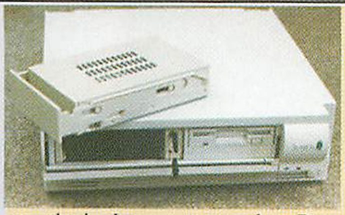


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PAL TV Coders



PLC/3 £104.57

The PLC/3 PAL TV Coder works in any of the 'Standard' Modes, e.g. mode12 and 15 on all Acorn computer models. The PLC/3 has a 15 pin RGB output for the monitor, a BNC for video and an S-VHS connector for S-Video. The PLC/3 will work with RiscPC computers although the AKF60, AKF85 and AKF90 will not work at the same time.



AVK/3 £355.00

The AVK/3 will work with all computer models in all screen modes up to 800 x 600 resolution in 16 million colours. It has a remote control with facilities for zooming, freezing & panning the TV picture. Ideal for lectures and demonstrations etc. The AVK/3 includes all connecting cables including a SCART which gives TV frequency RGB O/P for large screen TV's, a phono socket for composite video and an S-VHS socket for S-Video.



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A Brand new product from Pineapple is this VHS Video Tutorial covering the use of ArtWorks.
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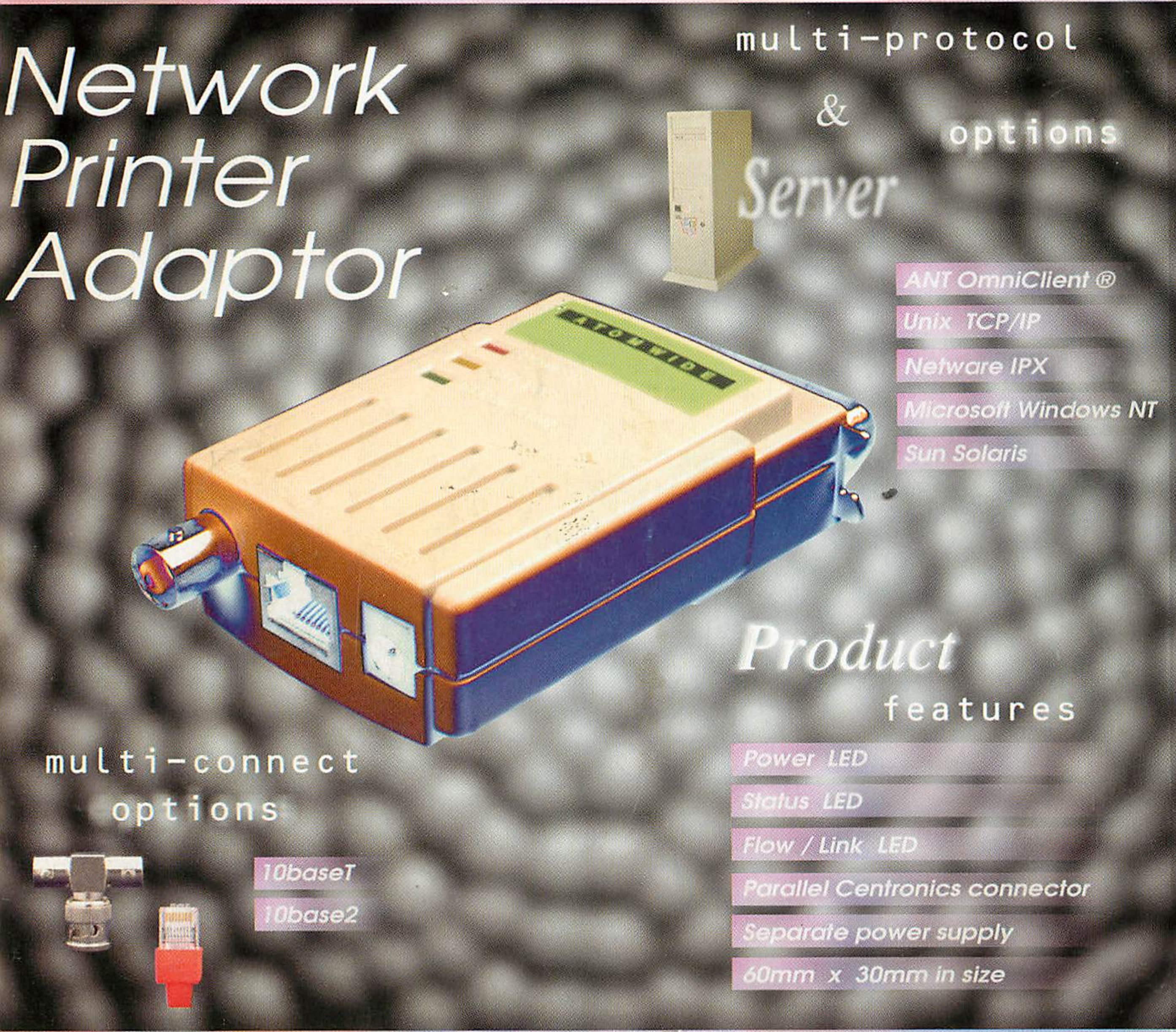
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